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THE CALIFORNIA STATE JOURNAL OF MEDICINE

EDITED BY

PHILIP MILLS JONES, M. D.

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PHILIP MILLS JONES, M. D., Secretary and Editor

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Secretary State Society, - - }
State Journal, - - - } Office Room 1, Y. M. C. A. Bldg., San Francisco.
Official Register, - - - }

Telephone, Main 1560.

IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten. Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. IV JANUARY, 1906. No. 1

NOTICE.

The arrangement of the program for the next meeting of the State Society, so far as all papers relating to Eye, Ear, Nose and Throat diseases are concerned, has been placed in the hands of a committee of the San Francisco Society of Eye, Ear, Nose and Throat Surgeons. All members desiring to read papers in this section, should send the title and an abstract of the paper to Dr. W. Scott Franklin, Dana Building, San Francisco.

A NEW YEAR.

With the new year begins the fourth year of the life of your JOURNAL, and your Publication Committee begs leave to extend to each and every member of the Society its hearty good wishes for a very happy, peaceful and prosperous New Year. We have much to be thankful for and much to look forward to in this coming year and those which will follow it. We ask you to give us your help and your support; when you see any point in which you think your JOURNAL may be improved, please write to the Publication Committee and set forth your views; we can assure you that your courtesy in so doing will be highly appreciated. We are striving as best we may, and with all our energy, to place in your hands each month just as good a journal as we can possibly put together; but we know that there is plenty of room for improvement. Help us toward the improvements by your serious suggestions. As a wish for the new year, let us earnestly hope that every one of us will remember that the "master word in medicine is WORK," and let us try to do everything we individually can to bring about "unity, peace and concord." Let us have always in mind the dignity of our profession, and let us do nothing that may detract from it, and say no word that may bring disrepute upon a brother physician. If there be one of whom we can say no good, let us at least remain silent and without adverse criticism. To belittle each other is to belittle ourselves and our profession and to lower ourselves in the eyes of the public. Let us dwell together in that charity which can forgive much and in the end help much, and may that "peace of God which passeth all understanding" abide with us and be a part of our lives during the coming year.

REQUIESCAT IN PACE.

With the passing of the old year, died the *Medical News*, a journal which for nearly sixty years had occupied an honorable position in the field of American medical journalism. The mere death of a medical journal is in itself a matter of no especial import, for journals come and journals go, while the nostrum goes on forever.

The particularly unhappy incident in this case is the fact that the *Medical News* has been absorbed by the A. R. Elliott Publishing Company, an institution which publishes the *New York Medical Journal* and the *American Druggist;* it has been suggested as a sort of "side line" to the advertising agency of A. R. Elliott. Elsewhere in this issue we put before you some examples of the claims which this company makes for one of its publications, and by way of contrast, some illustrations of the manner in which it supports (?) these claims in actual practice. Comment seems quite superfluous; we mourn that the *Medical News* had not a worthier death.

COLLIER'S ON ACETANILID.

The fourth of the series of articles on the "Great American Fraud" appeared in *Collier's* for December 2d, and again we earnestly commend this publication to your attention. Every practicing physician in the United States should read these articles and be in possession of the information which *Collier's* is thus presenting. Furthermore, it is the duty of every physician to see that his patients are informed on these matters. Heretofore we have failed in our duty in that we have not educated the public in the commonest of the dangers that assail them; this should be changed, and we should see to it that they know just what they are drugging themselves with when they use these nostrums—these so-called "patent medicines," which the *San Francisco Call* states editorially can do no harm.

Doubtless the *Call* takes considerable thought to the many advertising contracts which are probably on file in its business office, and which, and also probably, contain the damning clause which has done away with the freedom of the press.

This is what *Collier's* thinks about the numerous nostrums composed largely of acetanilid:

BEWARE OF ACETANILID

The following well-known "remedies," both "ethical" and "patent," depend for their results upon the heart-depressing action of Acetanilid:

Orangeine	Megrimine	Ammonol
Bromo-Seltzer	Anti-Headache	Salacetin
Royal Pain Powders	Dr. Davis's Headache Powders	Phenalgin
Miniature Headache Powders	Antikamnia	Cephalgin

and practically all of the drug-store-vended "headache cures" and "anti-pain" remedies.

Take no nostrum of this class without a doctor's prescription, unless you are sure it contains no acetanilid. Make the druggist tell you. He is responsible. A suit for damages has recently been won against a New York drug store for illness consequent upon the sale of a "guaranteed harmless" headache tablet containing three gains of acetanilid.

This cut we will have reprinted on slips and would suggest that you send for some and keep a few in your waiting room, so that your patients may know what these "medicines" are, and that they not infrequently kill. We would also respectfully commend to the attention of Mr. Bartow S. Weeks, attorney for the Etna Chemical Co., manufacturers of "phenalgin," the issue of *Collier's Weekly* containing the article from which we have borrowed this illustration.

A NICE BUSINESS.

The business of making nostrums and foisting them upon the medical profession first, and in that way upon the people later, is a particularly nice, clean and honorable one—perhaps. At any rate it is an extensive calling, and represents the investment of a good deal of capital in—shall we say, fraud? Believing that some of our members possibly do not see as many medical journals as come through our office, we have taken the liberty of reproducing some of their advertising pages so that you may see for yourselves what sort of valuable and beneficent products are presented to the medical profession—a profession that is supposed to be made up of educated, thinking men. Note the standing and character of the journals which, for money, are willing to state that "anasarcin" is a "positive cure for dropsy";* consider the dignified attitude of some of these journals in aiding the newspapers of the land in the sale of fig syrup and santal-midy. If we undertook to comment on all of the rottenness in the nostrum business and in the "medical" journals which are controlled by these nostrums, there would be no room for anything else in your JOURNAL, and so we can only touch upon them casually here and there. We feel that we cannot begin the year better, nor in a more satisfactory way assure you that the policy of your Publication Committee in attacking the nostrums will be continued during the coming year, than by offering you the reproductions which appear in this issue. Are they not edifying? Should we not congratulate ourselves upon the character of our "medical" journals? Is it not nice and pleasant to see them helping the newspapers to help Mr. Pond, or somebody else, to secure a fortune by deluding the people and the ignorant in our profession, into buying "Pond's Extract," an article which Dr. Wood is reported to have said is perhaps as valuable as brick dust? One can see quite clearly that Mr. A. R. Elliott and other publishers of "medical-journals-for-profit" have a very high idea of the intelligence of their readers in recommending for their consideration and use the large assortment of worthless nostrums to be found in their advertising pages. And the unfortunate fact is, that if physicians were not fooled into using these nostrums by seeing the frauds so extensively advertised in "medical" journals, the frauds would soon die, for they do not live by merit, but in spite of a lack of it. We can assure you that we have not been paid for advertising either the journals or the nostrums found in the reproductions which we publish this month. This courtesy is extended to them quite gratuitously, and we hope that they will appreciate the kind attention.

Explain to your friends and patients that practically every newspaper in the United States is a silent partner in the nostrum fraud business. That it is bound to silence and to aid in defrauding the people into using alcoholic nostrums by the following clauses in its advertising contracts with the nostrum trust:

1st. It is agreed in case any law or laws are enacted, either State or National, harmful to the interests of the (Nostrum Manufacturing Co.), that this contract may be cancelled by them from date of such enactment, and the insertions paid for pro rata with the contract price.

2d. It is agreed that the (Nostrum Manufacturing Co.) may cancel this contract pro rata in case advertisements are published in this paper, in which their products are offered, with a view to substitution or other harmful motive; also, in case any matter otherwise detrimental to the (Nostrum Manufacturing Co.'s) interests is permitted to appear in the reading columns or elsewhere in this paper.

(See *Collier's Weekly*, Nov. 4, 1905.)

* We are very glad to state that since our illustrations were prepared we have received information that the *Alkaloidal Clinic* has discontinued this and some other objectionable advertisements.

A SIMPLE ILLUSTRATION.

Not so very long ago, a woman in San Francisco consulted a physician, and left his office to go to a drug store, carrying three or four prescriptions; one of these was for "pepto-mangan (Gude)." She presented all of the other prescriptions to the clerk, but held up the one especially mentioned and asked him if it did not call for "pepto-mangan." He replied that it did. Upon this the lady in question put the prescription in her pocket-book and asked for a bottle of "Lydia Pinkham's compound," saying that if the physician thought one "patent medicine" was good, she thought another was better, and preferred to take that one of her own choosing. What an increased respect for that physician she must have had! How she must have exalted his learning and intelligence! And what a compliment he paid her—to rank her intelligence so high that she considered herself quite on a par with her physician, when it came to choosing which "patent medicine" she should take!

DRUGGIST OR PHARMACIST?

In times past, pharmacy was considered a highly respectable calling and the pharmacist was regarded as a professional man; he was a prototype of the present physician, as the barber was the predecessor of the surgeon. More recently the pharmacist, still regarded as the follower of a professional calling, was regarded as the ally of the physician. But does that relationship maintain at the present time? Is the individual who dispenses drugs to be regarded as a pharmacist, the follower of a profession, or as a druggist, one who merely buys and sells drugs as a purely commercial occupation, incidentally selling alcoholic, cocain and morphine nostrums to whomsoever will buy, and refilling physicians' prescriptions just as often and just as indiscriminately as the public may desire and be prepared to pay for such potions? It seems to us that this druggist question is now no longer a theory, but has become a condition which necessitates serious consideration by the medical profession. Lay publications (*Collier's Weekly*, the *Ladies' Home Journal*, etc.) have shown that most of the so-called "patent medicines" are either worthless frauds or are alcoholic, cocain or morphine mixtures. To sell the former class to the deluded people is to participate in a direct fraud; to deal in the latter class of preparations is worse than a fraud, it is participation in a serious crime. We have reached the parting of the ways. Is it the purpose of the former ally of the physician to again become a professional pharmacist and cease from participation in fraud and crime, or is it the intention of the druggists to be merely commercial entities and share in the proceeds of defrauding and debauching the public? What is to be the purpose of the various associations of retail druggists? Is it to stimulate professional pharmacy, or is it to boom the sale of any fraudulent or worthless nostrum for which the manufacturer will agree to fix and maintain a price sufficiently high, so that the retailer of the fraud may participate in the crime? It should be the duty of every county medical society in the United States to take this matter up with the local druggists (or pharmacists?) and demand some definite statement of their attitude.

Where is the freedom of the press? Practically every newspaper in this country has been bought by the alcoholic nostrum manufacturers and has signed advertising contracts with them which contain the following clauses:

1st. It is agreed in case any law or laws are enacted, either State or National, harmful to the interests of the (Nostrum Manufacturing Co.), that this contract may be cancelled by them from date of such enactment, and the insertions paid for pro rata with the contract price.

2d. It is agreed that the (Nostrum Manufacturing Co.) may cancel this contract pro rata in case advertisements are published in this paper in which their products are offered, with a view to substitution or other harmful motive; also, in case any matter otherwise detrimental to the (Nostrum Manufacturing Co.'s) interests is permitted to appear in the reading columns or elsewhere in this paper.

(See *Collier's Weekly*, Nov. 4, 1905.)

SOME PROGRESS.

In the matter of the fees for life insurance examinations, we have to report progress since last month. We are now compiling information relating to every company doing business in this State, and hope in a short time to be able to place it before you. In the meantime, we know of two companies that have instructed their agents to pay the $5 fee in this State when it is demanded, and under no circumstances to allow any trouble on this score to arise. It seems to be quite evident that it is only a matter of time when the minimum fee paid for a life insurance examination in California will be $5; that is, *if the physicians of the State want it to be so.* It is all up to you. If you will insist upon this, and fight it out, you will certainly win. The medical directors of several companies have written us that, in their estimation $5 is little enough to pay for the work done, and that a cheap examination is really worthless. Just use all your personal influence in diverting business from the cheap and careless companies to those which have enough thought for their policy holders to pay for a proper examination and pay a decent fee. Physicians have too long regarded themselves as impotent in the hands of these mighty corporations, and hence they have been paid but scant consideration.

You have the power to alter this condition of things, if you care to exert it. Will you do so? Do you care to see a change?

THE A. M. A. DIRECTORY.

It seems hardly necessary to call the attention of our members to the value of a complete file of information relating to licensed physicians, for in this State an official Register has been published for nearly twenty years. Heretofore, however, there has been no such registration of information covering the entire United States, and all published Registers or Directories have been very faulty. It is for that reason that the American Medical Association has undertaken to compile this data and then to publish a directory which will be really reliable. Every physician in the State should fill out and return promptly the information blank which has been sent him by the secretary of the A. M. A. All of the information requested will not be used for publication, any more than all the information asked for on the cards which we use for our State work appears in our Register; but it is necessary for identification purposes. Please be prompt about sending in the information blanks, and thus expedite the work of bringing out a good directory.

DR. McCORMACK'S ADDRESSES ON ORGANIZATION.

(Concluded from page 377, Vol. III, No. 12.)

Most of the meetings of county medical societies in the past, and many at the present time, are not of very great value. In too many instances the proceedings will be about as follows: A summary of minutes will be read, and then Dr. Blank will be called upon to read a paper. This is liable to be upon the treatment of typhoid fever, proper management of labor, or, if it is in the spring, on the summer diarrhea of infants. The paper is made up of extracts from some long-since antiquated textbook, and both it and the author should have had several new editions brought out to bring it up to date. After the paper is read there will be a profound silence, until the presiding officer states that the paper is now before the society and calls upon Dr. X. to open the discussion. Dr. X. arises and his discussion is apt to be about as follows: "Mr. President and fellow members, I fear that I have not been so regular an attendant at the meetings of our county society in the past as I should have been. But when I listen to such an excellent paper as has been presented to us to-night by Dr. Blank, I feel that I shall be more regular in the future. Dr. Blank has presented such a masterly paper and has placed the information so clearly before you, that there seems to me to be nothing left that I can add to what he has said. I will therefore ask you to excuse me and call upon some other member, who may possibly be able to add to the subject under discussion." That sort of a meeting is almost enough to make any studious and hard working physician keep away from his county society more industriously than ever.

By contrast, consider what a county society should do, and what a few are doing at the present time. Its secret of success is in work; regular, systematic work. It should meet once a week, or oftener, if possible, and regular courses of work should be outlined and taken up. From September to May, the business of the county society, and of every member of it, should be to make the society a practical post-graduate medical school. In order to secure the evenings free, physicians should make their night rates go into effect at 8 o'clock, and should advise their patients that they will get better attention at half the cost if they will have the forethought to call their physician, when they need him, before that hour. Nine out of every ten night calls are totally unnecessary; the doctor might just as well have been called before eight, or the next day; generally when the doctor is called out at night it is due to unthinking selfishness.

There is not a physician who has been in practice for any number of years who has not grown rusty in some branches, and who would not be improved by regular courses of study. Who of us who has not been constantly at work in the dissecting room would not be improved by a good course in practical anatomy? Who would not benefit by a course on materia medica which would take up the work of the Council on Pharmacy and Chemistry and talk plain facts as to the nature and composition of the many fraudulent nostrums recommended to our profession? As individuals, we do not know the real truth about most of these things, and our medical journals tell us only the manufacturers' side.

Every one of the regular lines of medical study should be taken up by the county society and regular courses of work followed. There is not a single advantage that is open to doctors in New York or Paris or Berlin that is not open to every member of every county medical society, if he will but work for it. If the members will abide together in peace and charity, looking after their own and each others' interests and working together for the common good, they will all be better doctors and the public will more nearly receive what it expects—competent medical attendance. Different members should go to other places from time to time, and take post-graduate work and then come back and give the county society the benefit of their studies. In a well-organized and properly operating county medical

society, there will hardly be a time when some member is not away doing this work, the other members looking after his practice while he is away.

The old plan of desultory and generally worthless papers and aimless discussion should be done away with, and regular courses of work substituted for it. Occasional meetings should be arranged with the legal fraternity, and subjects of common interest discussed. It will be found that most of our lawyers do not know what the physicians are trying to do, nor what the legislation which they advocate really means. It is all altruistic and the public and not the medical profession benefits. This absence of self-interest should not only be clearly shown to the lawyers, but also to the clergy, and to that end meetings should be held with the ministerial association of the county, and the ministers educated to the harm they are doing in supporting quacks and nostrums and giving testimonials to them. The members of these other professions cannot be expected to know the real truth about things medical and sanitary unless we teach them. It should be the duty of each county medical society to undertake this educational work.

The county society should also have a committee on publicity, and through this committee give articles to the local papers on subjects of general interest. The people should know, for instance, that it is to their own advantage to maintain good fees so that their physicians may study and equip themselves and thus be ready to give the best of medical attention. A poor doctor is a dangerous doctor, and if the people make the doctor poor, they are the ones who suffer.

If the county society meets often, undertakes and follows regular and systematic work, and does the various duties which have been outlined and which, heretofore, have been neglected, there will be much less time for personal fights and quarrels. What is needed to make a good county society is work, and this they should all arrange for and undertake.

Proprietary Association of America.

This is the organization of philanthropists and public benefactors, many of whom are good enough and have sufficient of the milk of human kindness in their hearts to furnish alcohol, cocain, morphine, etc., to man, woman or child who can be persuaded into self-dosing by lying advertisements. It held a meeting on December 4, 1905, and we are informed that some sixty members attended. Doubtless "Peruna," "Hostetter's Bitters," and others of the alcoholics were cheek by jowl with the deadly "soothing syrups" and "catarrh cures." It must have been a merry gathering, so near to the gladsome Christmas time, and doubtless the sixty odd philanthropists thought often of the homes they have—shall we say absorbed?—and the lives they have ruined in the regular course of their honest and ennobling occupations.

They passed some resolutions. The resolutions are absolutely astounding. Scarcely ever has this country seen an exhibition of greater or more coldly calculating sarcasm. Imagine these sellers of alcoholics and morphine or cocain nostrums objecting to doing the very things that support them! Imagine them trying to secure honest laws to honestly control the sale of cocain! But there is no use trying to discuss the matter longer; words are insufficient. Just read the resolutions. If it were not to weep, it would be to laugh.

Resolved, That this association thoroughly disapproves of any effort on the part of any person or firms, members of this association or not, to market as medicines any articles which are intended to be used as alcoholic beverages or in which the medication is insufficient to bring the preparation properly within the category of legitimate medicines.

Resolved, That the Legislative Committee be and is hereby instructed to earnestly advocate legislation which shall prevent the use of alcohol in proprietary medicines for internal use in excess of the amount necessary as a solvent and preservative.

Resolved, That the Legislative Committee be also instructed to continue its efforts in behalf of legislation for the strictest regulation of the sale of cocain and other narcotics and poisons or medicinal preparations containing the same.

Resolved, That this association urges upon its members the most careful scrutiny of the character of their advertising and of claims for the efficacy of their various prescriptions, avoiding all over statements.

THE MEDICAL NEWS.

It is with regret that we read the announcement that our old friend, *The Medical News*, is to pass out of the hands of the Messrs. Lea Brothers and Company into that of the A. R. Elliott Publishing Company on January 1, '06.

The attitude of the latter concern in the matter of nostrum advertising is well known and we believe thoroughly disapproved by the medical profession, and we doubt whether the *News* will ever do as well under the new management as it has done in the past.

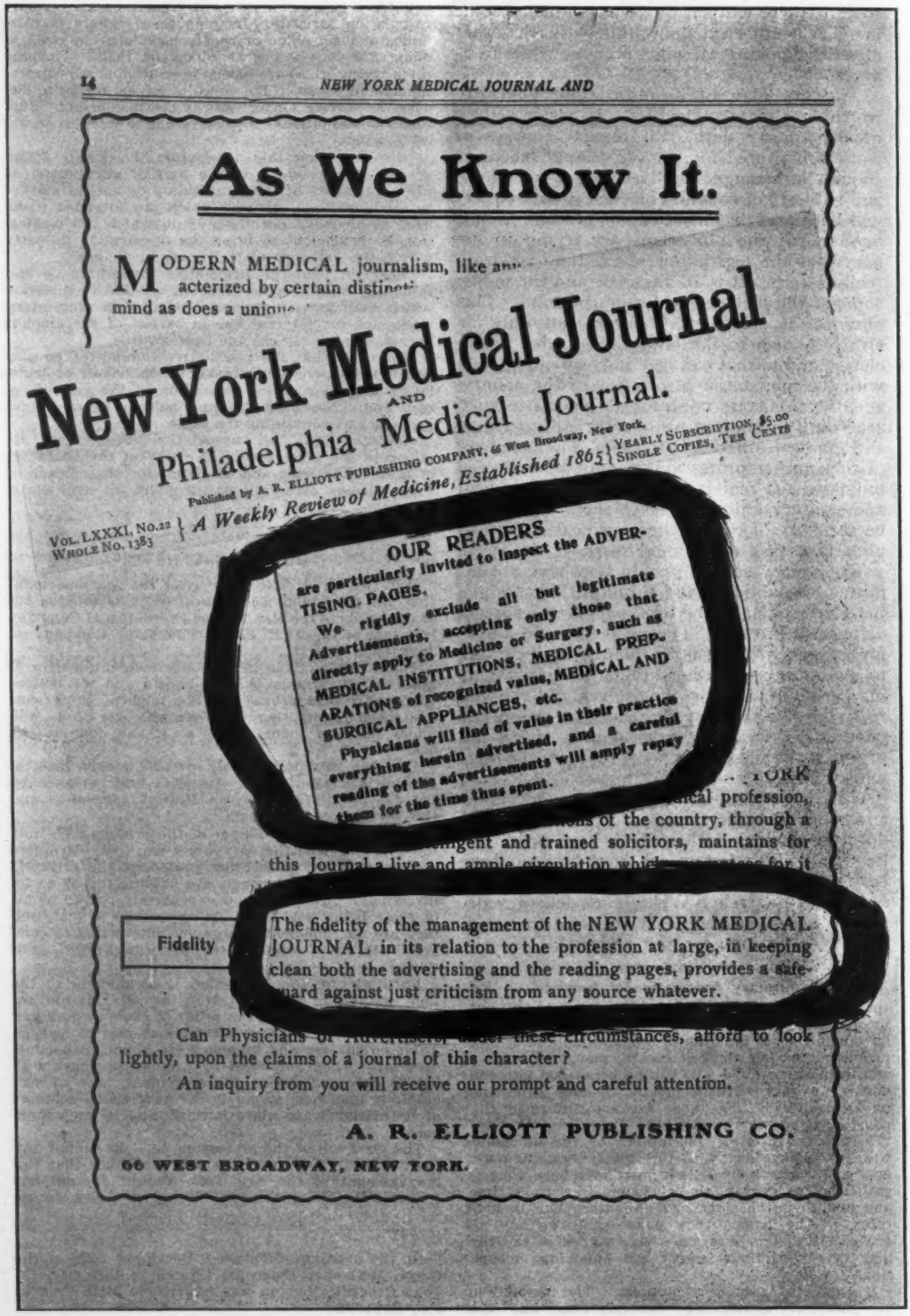
The day of the privately owned weekly medical journal is passing away. Its place will be taken by the *Journal of the American Medical Association* and the various state journals.

Like the medical colleges of the present day, only the very best and the very worst can live. Mediocre medical institutions are not wanted, so the privately owned respectable journals are ceasing to pay as an investment. They are too expensively run to admit of their being sold for a dollar or two a year, and they are not sufficiently large and interesting to compete with the *Journal of the American Medical Association*.

Furthermore, the profession is awakening to the fact that all of these privately owned journals are managed primarily for the profit of their owners and secondarily for the true interests of the profession. Their circulation and influence are bound to decline, especially when published by a business house willing to defy and deride the movement, now so successfully launched, to purify the advertising columns of the national and state journals and to keep them pure.

The good will of the profession must be behind any journal, if it is to succeed, and we think that the management of the *New York Medical Journal* has forfeited this good will.—*Jnl. Med. Soc. of New Jersey.*

On the evening of Tuesday, December 26th, at the Grace Methodist Episcopal Church in this city, Dr. John Crockett Newton was married to Miss Frances May Sanborn.



14 NEW YORK MEDICAL JOURNAL AND

As We Know It.

MODERN MEDICAL journalism, like an... acterized by certain distinct... mind as does a unique...

New York Medical Journal AND Philadelphia Medical Journal.

Published by A. R. ELLIOTT PUBLISHING COMPANY, 66 West Broadway, New York.

VOL. LXXXI, No. 22 WHOLE No. 1383 | *A Weekly Review of Medicine, Established 1865* | YEARLY SUBSCRIPTION, $5.00 SINGLE COPIES, TEN CENTS

OUR READERS

are particularly invited to inspect the ADVERTISING PAGES.

We rigidly exclude all but legitimate Advertisements, accepting only those that directly apply to Medicine or Surgery, such as MEDICAL INSTITUTIONS, MEDICAL PREPARATIONS of recognized value, MEDICAL AND SURGICAL APPLIANCES, etc.

Physicians will find of value in their practice everything herein advertised, and a careful reading of the advertisements will amply repay them for the time thus spent.

...ORK ...ical profession, ...ns of the country, through a ...ligent and trained solicitors, maintains for this Journal a live and ample circulation which ... for it

Fidelity

The fidelity of the management of the NEW YORK MEDICAL JOURNAL in its relation to the profession at large, in keeping clean both the advertising and the reading pages, provides a safeguard against just criticism from any source whatever.

Can Physicians or Advertisers, under these circumstances, afford to look lightly, upon the claims of a journal of this character?

An inquiry from you will receive our prompt and careful attention.

A. R. ELLIOTT PUBLISHING CO.

66 WEST BROADWAY, NEW YORK.

What it promises the medical profession. (Query: Is the "N. Y. Medical Journal" a "comic weekly?")

New York Medical Journal
and Philadelphia Medical Journal
CONSOLIDATED.
A Weekly Review of Medicine. Established 1865.

A. R. ELLIOTT PUBLISHING COMPANY.
66 West Broadway, NEW YORK.
NEW YORK, PHILADELPHIA, CHICAGO.

TELEPHONE CONNECTION.

New York, March 14, 1905.

[redacted]
Chicago, Ill.

Gentlemen:

Regarding the recent action of the American Medical Association we beg to say:-

Most sane persons are disposed to regard the personal property which their exertions have created as peculiarly their own; and any suggestion that they part with it would probably be treated with derision.

This seems, in essence, to be what the American Medical Association demands in its new rules about proprietary preparations. To comply with the new requirements would be to make your products common property. By furnishing the information demanded you would enable pirates to affirm that their spurious imitations were made in accordance with the published formulas of the association.

Refusal to be mandamused out of your property will result in the exclusion of your advertisement from the association's journal. Also it will exclude you from the proposed book of non-official remedies. Very many others will be excluded for the same reason, and the book consequently will be incomplete.

We therefore offer you space in the New York Medical Journal for a brief expression of your views on this important matter, and shall be very glad to hear from you at your earliest convenience.

Very respectfully yours,

A. R. Elliott
President.

One of the "safeguards" provided for the medical profession by the A. R. Elliott Publishing Co., owners of the "N. Y. Medical Journal. (This cut has kindly been loaned to us by the "Journal A. M. A.")

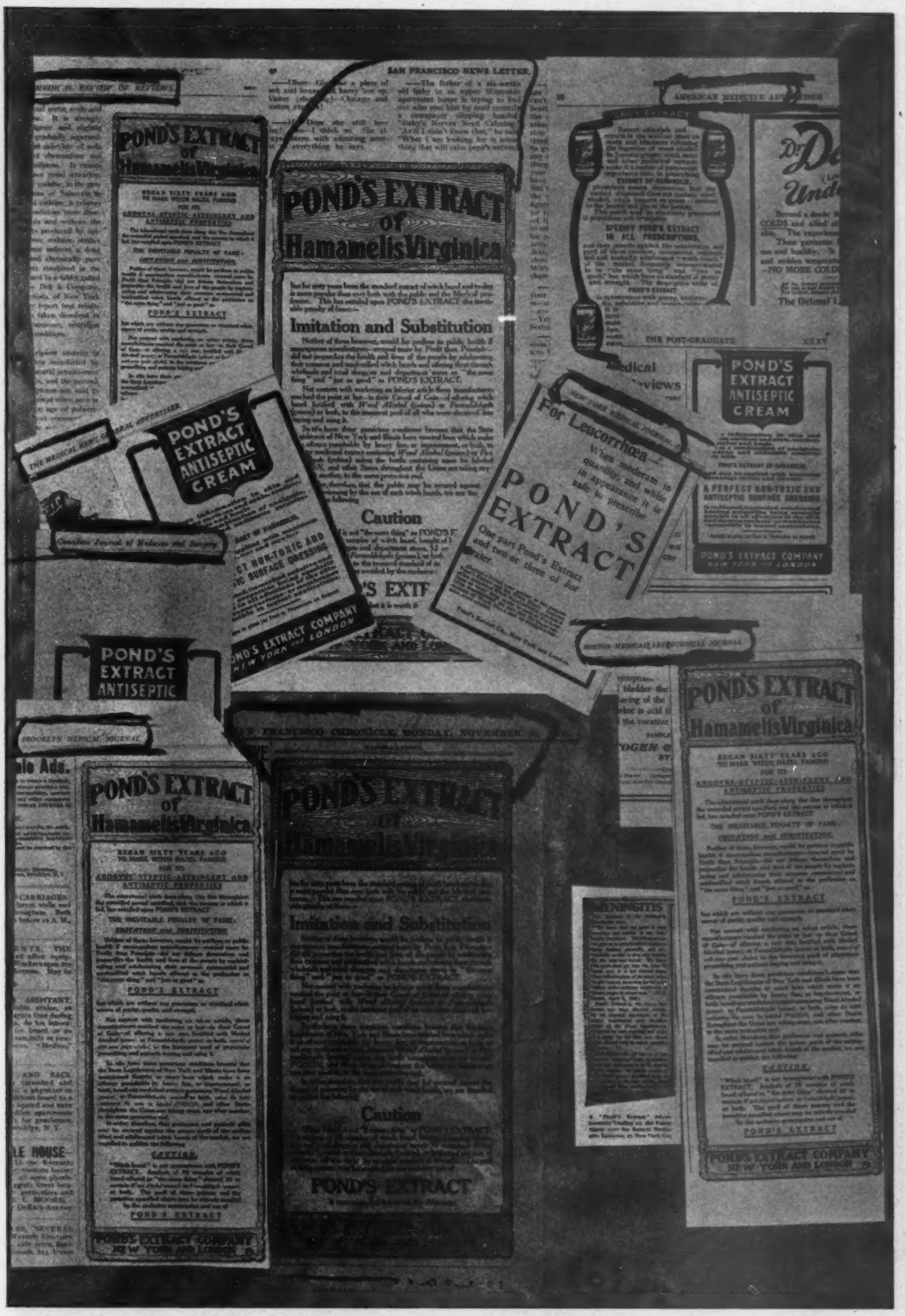
SAN FRANCISCO CHRONICLE, SUNDAY, NOVEMBER 26, 1905
Miraculous Cure of Pneumonia
Duffy's Pure Malt Whiskey
THE TRUE TONIC STIMULANT
DUFFY'S PURE MALT WHISKEY
BE SURE TO SPECIFY DUFFY'S IN PRESCRIBING
SAMPLE BOTTLE SENT FREE TO PHYSICIANS ON REQUEST.
DUFFY MALT WHISKEY CO.
ROCHESTER, N. Y.

Some of the "legitimate" advertisements which the "N. Y. Medical Journal" thinks "Physicians will find of value in their practice."

A few compliments (?) to medical intelligence.

21 OKLAHOMA MEDICAL NEWS-JOURNAL
CAPSULES
of Cypridol do not salivate or produce dyspepsia and the emaciation which is inevitable with other mercurials. 1/32nd grain in each capsule.
Sold in Bottles of 50.
CYPRIDOL
A 1% SOLUTION OF
MERCURIC IODIDE IN AN ASEPTIC OIL
IN
SYPHILIS
INJECTIONS
of Cypridol are vastly superior to all soluble or insoluble mercurials used hypodermically.
They are non-irritating and free from all untoward after effects.
Dispensed only in graduated tubes.
6 tubes in a box.
CEREVISINE
succeeds admirably in the treatment of furuncles, urticaria, acne and boils which promptly subside and disappear under its influence.
PURE DESICCATED YEAST
CEREVISINE
IN
SKIN DISEASES
CEREVISINE
Is indicated in cases of psoriasis, herpes and eczema; its effects being associated with corresponding improvement in the general health.
U. S. Agents, E. FOUGERA & CO., 26, 28, 30 N. William St., New York.
Santal-Midy
OL: SANTAL: FLAV: PUR: (MIDY)
The standard preparation of Sandalwood Oil, in 5 minim capsules. Superior to all commercial oils in the treatment of specific and non-specific Urethritis, Cystitis, Bronchitis, and wherever the properties of Sandal Oil are indicated in inflammatory conditions of the mucous membranes.
San Francisco Chronicle.
Published Daily at
CORNER MARKET, GEARY AND KEARNY STREETS
M. H. de YOUNG, Proprietor.
SATURDAY.....NOVEMBER 11, 1905
SANTAL MIDY CAPSULES
Relieves Kidney & Bladder troubles at once.
Cures in 48 Hours all URINARY DISCHARGES
Each Capsule bears the name MIDY
CHICHESTER'S ENGLISH
PENNYROYAL PILLS
Vol. CLIII, No. 15] BOSTON MEDICAL AND SURGICAL JOURNAL 31
Santal-Midy
OL: SANTAL: FLAV: (MIDY)
NOTICE:
Physicians who have successfully used "Santal-Midy" in Catarrh of the Bladder, Cystitis and Urethritis for the last 12 years, are liable to lose faith in this most valuable drug, on account of the extensive substitution of cheaper brands of capsules, with which the market is flooded.
The standard oil distilled by Midy's process from a certain kind of Mysore sandal wood, is dispensed in 5 minims capsules bearing the name "Midy." This is a guarantee against the substitution of the commercial oil of sandal from Mysore, Timore, and Western Australia.

Is comment necessary?



"About as useful as brick dust," yet commended to the attention of intelligent physicians.

Ethics! Ethics! What new crime may not be committed in thy name!

HERZSTEIN LECTURES IN THE UNIVERSITY OF CALIFORNIA FOR 1905.

Special Chemical Problems Related to Practical Medicine.

Synopsis furnished to the JOURNAL by the lecturer.

LECTURE III.

The Relation of the Nitrogenous and the Carbonous Metabolism in Disease.

By ALONZO ENGLEBERT TAYLOR.

The nitrogen metabolism (including the purin metabolism) may be defined as the metabolism of cellular regeneration. There is in the body cells a constant autolysis. New nuclear substance and protoplasm must be formed for new cells. Beyond the term of growth, the magnitude of these regenerations is quite independent of the activity of the life of the individual, and is related to the species. Apart from conditions of disease, a cell seems to last a certain length of time in each species. The velocity of autolysis and regeneration is very low in the cold-blooded animal and is apparently little less during hibernation than during the active state. If the diet of an animal be properly arranged, it will be found that severe and prolonged exertion is supported entirely by the carbonous metabolism; the nitrogenous metabolism is not increased. Heat is, of course, produced in the nitrogenous metabolism, but it is incidental and comprehends but a fraction of the heat production.

Beyond the metabolism of the cellular life, the endogenous metabolism, there is an exogenous nitrogenous metabolism, related to the excess of protein input over the cellular needs. The limitations and interrelations of these two have not been defined. There is in the purin metabolism also, an endogenous and an exogenous fraction.

The protein necessary to a normal diet may be set down as about one gramme per kilo weight. With a large body weight, the ratio will be disproportionately reduced, since further increase in weight will be largely fat and skeleton, and fatty tissue has small nitrogen needs. Since a body of 70 kilo will contain about 10-11 kilo of cellular material, one gramme of protein per day maintains the status of some 150-200 grammes of cells (calculated water-free). The nitrogen proportional to this protein ratio will appear in the urine daily in the form of end products of the protein catabolism. This output represents the reaction velocity of these cells.

The 150-200 grammes of cellular material has a uniform water content and represents a substrate concentration in a reacting system. The nitrogen output represents the transformation under constant conditions of work and stands for the constant. A corresponding amount of substrate added regularly to the system (in the form of the protein diet) will maintain the concentration of the substrate. The products of the reaction are removed from the body. We know that the transformation in a chemical system will be uniform in time if the products of the reaction be removed, the temperature held constant and the substrate concentration maintained by the regular addition of that amount of the substrate indicated by the constant. The accelerator for the reaction of hydrolysis may be assumed to be the intracellular proteolytic ferments, and these are assumed to be unvarying, since the transformation on a constant diet is uniform. It is not yet possible to apply the law of mass action to the details of the protein metabolism (for example, the substrate is not strictly the mass of the cells, but some relationship between the mass of the cells and the circulating protein), but in this point of view is represented unquestionably the dynamics of the process.

There is a great power of adaptation in this function. It is possible to cut down the protein input materially; it is possible to compel the body to maintain its heat and energy expenditure entirely from protein. It is possible in adaptable individuals to cut the protein ratio down to some 30 grammes of protein per day for a body of 70 kilo, though disproportionate amounts of carbohydrates will be needed in the diet. When the quotum of protein in the diet is normal, we need that amount of fat or sugar that will yield 25-35 Cal. of heat per kilo per day; when we cut the protein down one-half, we need a ratio of carbohydrate or fat sufficient to yield 40 Cal. per kilo per day. This indicates that when the repair of the cellular mass of the body is to be accomplished with the minimum of new material, these cells do not perform their functions of combustion as economically as in the normal.

When no food is taken except protein, the body will perform all its functions on this one material. A body of 70 kilo will require from 500-600 grammes of protein, ten times the amount needed for the repair of the cellular losses. There is evidence that when compelled to maintain the body heat by the combustion of protein, the cells work at a greater wear and tear than normally, and proportionately more than 1 gramme per kilo weight will be needed for their repair; therefore, somewhat more than the isodynamic amount of protein will be needed if all the functions are to be supported by it. There is also evidence that muscular contraction (work) is not maintained as economically by the combustion of protein as by that of sugar.

When to a mixed diet an excess of protein is added, the body resists an excess of circulating protein, so that all the excess is hydrolysed and the nitrogen output balances the input. Since this evolves heat, less of the carbonous substances of the body will be burned, and as the combustion of carbon is regulated by the heat needs and not by the material available, that will be spared and stored as glycogen and fat. The saving is not strictly isodynamic, since the oxidation processes on a heavy protein diet are excessive.

When an animal is starved, the protein catabolism is reduced to somewhere near the figure given as the normal minimum (½ gramme per kilo). The heat is first supported by the combustion of glycogen; later of fat. So long as the fat is abundant, we have the normal relations of protein and carbonous metabolism; when the fat has sunken appreciably, some body protein begins to be burned for heat, and this ratio increases progressively until at the close, when the fat is low, the temperature is maintained largely by the combustion of cellular protein.

When an animal is placed upon a protein diet, the body fat and carbohydrate retain their status quo. The blood sugar rests at a minimum, the glycogen of the body does not increase, the fat is unchanged, the metabolism of fat and sugar have become quiescent. Just how the protein molecule is burned, following its hydrolysis, is not known; it has been usually assumed that the carbonous groups would pass through the stage of sugar, but the direct combustion is theoretically possible. If the protein diet be excessive, it is all hydrolysed and burned, the carbonous as well as the nitrogenous portion. It has been assumed that under these conditions a part of the carbon of the excessive protein would be retained as fat or glycogen. Careful experimentation has thrown the gravest doubt upon this statement, although in occasional instances of forced experimentation small amounts of carbon are retained. The amount concerned is trivial and cannot be used to force an interpretation of the conditions under normal circumstances. Under physiological circumstances a derivation of carbohydrate from protein is improbable.

The carbonous metabolism maintains the body heat and is the basis of muscular energy. The incidental heat developed in the hydrolysis and oxidation of protein in the essential protein catabolism is not over 300 Calories per day. The two functions of combustion for body heat and muscular energy are in part reciprocal. When heat is produced in association with muscular work, that heat maintains the body temperature, with a consequent saving of other combustion. The functions are only in part reciprocal. All notable muscular exertion is associated with a heat production beyond the amount needed to maintain the body temperature, and the excess is dissipated. Within certain limits the processes for the combustion of carbohydrates and fat for the purposes of the maintenance of the body heat are a reflex function of the external temperature; the more rapidly the body loses heat, the more rapidly the process of combustion will operate, and when the loss is so rapid that the direct chemical processes, aided by the maximum available restriction of heat dissipation, cannot maintain the loss, heat will be furnished by the indirect method through muscular exercise, as by shivering. In the other direction, however, the influence is less strict. If we place a human body in a room with a body temperature, it might be conceived that, apart from the small amount of heat produced in the protein catabolism, the body would exhibit no combustions at all, since no heat is needed. This is not the case. There will be a reduction in the combustion of sugar and fat, but a certain amount of heat will be produced, although it is not needed. Higher temperatures are often accompanied by excessive combustions; thus a man in a Turkish or Russian bath will often actually burn up more carbonous substance while within the bath than under ordinary circumstances.

One gramme of fat yields about 9 Calories of heat, a gramme of sugar about 4.2 Calories. Now, in the body the combustion of sugar is more economical than in the case of fat, so that here sugar has, for the purposes of fuel, half the value of fat. To furnish the body heat, we need some 250 grammes of fat or 500 grammes of sugar. These are in the body practically isodynamic in all proportions. There is, however, a difference in their relations to the protein metabolism: sugar has a greater saving power for protein than fat.

Sugar is burned in the body indirectly. One of the great questions now pending is whether sugar is burned via alcohol as an intermediary product, analogous to the fermentation of sugar. When in excess in the body, sugar is converted into glycogen. When the glycogen storage reaches a certain point, sugar is converted into fat. How the fats are burned in the body we do not know. If they are burned directly, it is of importance to know whether this occurs by the successive splitting off of CH. groups, whether it is preceded by an intra-molecular cleavage or whether a fat is burned by direct oxidation, through oxy-acids. It is also possible that fats are not burned directly at all, but first converted into sugar. The easy formation of fat from sugar makes the reversion into sugar a chemical feasibility. In plants this reversion is a regular physiological act. That these combustions are to be interpreted as fermentations is certain.

There is between the carbonous and protein metabolisms one fundamental difference; their relation to the input. The magnitude of the exogenous catabolism of protein is a function of the input; combustion in the carbonous metabolism is a function of the body needs. The body needs only some 60 grammes of protein per day, but, no matter how much more is ingested, all the excess will be promptly hydrolysed and eliminated. Of fat and sugar the body will burn only so much as is needed for the body heat and for muscular exertion; if more than this amount be ingested, it will not be burned, but stored. The body invites an excess of carbon; it repels an excess of nitrogen. The body stores the carbon for future heat and work; it will not store the nitrogen for future regeneration of cells. That a small retention of protein can be accomplished is true, but so soon as the diet is returned to the normal, the excess retained will be hydrolysed.. This distinction is fundamental, and of the greatest physiological and practical importance. It means chemically that in the case of protein the retained excess adds to the substrate concentration, is active in the sense of the mass law; the body possesses no power to store it in some inactive form. In the case of fat and sugar the excess retained is stored in an inactive form, so that the substrate concentration is not increased. Sugar is the active state of carbohydrate, glycogen is the storage state, a soluble fat-complex is the active state of the fat, neutral fat is the storage state.

Variations in Conditions of Disease. The difficulties that attend the reduction of obesity and the fattening of a naturally emaciated individual have given the impression that the fat person subsists on less food and the thin person requires more food than the normal. Assuming that in each instance the factor of digestion and assimilation is normal, are there persons whose body needs are appreciably greater or less than the normal? Is there such a thing as a retardation of metabolism as a type, a constitutional entity that is expressed in a reduction of the unit-metabolism? The bear has a different unit of metabolism when active and hibernating. Such a constitutional retardation as postulated by Bouchard would resemble the hibernating metabolism as against the active metabolism. Is there such a thing as a constitutional type of excessive metabolism? There are here many individual variations. These variations are much less marked for the nitrogenous than for the carbonous metabolism. Apart from disease, the protein needs of the bodies of different individuals display small variations. The individual variations in the carbonous metabolism are normally very great, as is to be expected from the number of adventitious variables. The following factors must be considered: (a) The relation of body-weight to surface dimensions (the dimensions of heat radiation) are different for different individuals. (b) The variations in the physical modes of heat dissipation are different, depending on the pigmentation and the thickness of the skin, the vasomotor tone of the cutaneous vessels, the number and activity of the sweat glands and the covering of body hair, etc. (c) The efficiency of involuntary muscular exertions is different in different individuals; the work of circulation, respiration, vaso-motor control and peristalsis vary greatly with different persons. (d) The digestion is not a constant factor, individuals losing more or less carbon from the diet by alimentary fermentation, and this cannot be measured or controlled. (e) The work of the secretion of the digestive juices and the work of assimilation is different in different persons. All digestion is accompanied by excessive oxidation that is more marked for the digestion of protein than for that of fat and starch. This is variable, and this simply means that different persons accomplish the work of a unit of digestion more or less economically, just as different amounts of energy are required to carry different persons over a mile of running, depending on their economy of motion, which is an individual variation. (f) The oxygen input cannot be strictly controlled, some is lost in the intestinal gases, some from the skin, while some of the oxygen utilized in combustions comes from water and not from the atmosphere; therefore, an error is attached to all estimations of oxygen-input and carbon-dioxide-output. (g) The involuntary use of the voluntary muscles is different in different persons, an observation that is clearly noted in the phlegmatic and the nervous.

This is unquestionably a factor of great influence. Now, sleep is an inconstant factor. Sleep is, however, on account of the muscular rest, attended by a saving in oxidation as against the waking hour. (h) The muscular habitus is of great influence. No two persons walk or run a mile with the same expenditure of energy. (i) The Calorie-kilo ratio will not be the same in the thin and fat, because of the thermic indifference of the fat, it be much lower in the obese. These numerous factors result in variations in the heat-unit per kilo per day ranging from 20 to 35 Calories. Following disease and during convalescence from emaciation, the figure is low. The findings in myxodema and following castration also fall within these factors. The relations in every case of obesity and in every case of emaciation (not due to disease) that has been studied by proper methods, with the above-named factors controlled or recognized, has led to negative results. All the properly studied cases have yielded results within the limits of the normal. No data exists, therefore, tending to show that there is a constitutional obesity or emaciation depending upon a retardation or acceleration of the carbonous metabolism. It is equally certain that no data exists tending to show that such a thing as a retardation of the protein metabolism occurs.

The incompletion of an act of nitrogenous or carbonous metabolism is known to occur under several circumstances. It is probable that future investigations will demonstrate that incompletions in the intermediary metabolism lie at the basis of many conditions now assumed to be intoxications solely on the basis of symptomatic analogy. The end-products of metabolism are quite free of toxic properties and we are thus compelled to revert to the intermediate metabolism for the chemical agents of systemic auto-intoxications. Several of these are known in the chemical sense, though in but one instance is a clinical entity connected therewith. If an excess of tyrosin be formed in the body, the liver will be unable to oxidize it all and a part of the substance will appear unchanged in the urine. In the alcaptonuric individual, however, a qualitative variation is observed in that the substance appears in the form of di-oxy-phenyl-acetic acid, which is normally an intermediary stage in the oxidation of tyrosin to di-oxyphenyl-a-oxy-proprionic acid. When the portal blood is deflected from the liver through an Eck fistula the ammonium salts, instead of being converted into urea, are eliminated in part unchanged. Idiopathic cystinuria presents another illustration of an incompleted act of protein metabolism, though here a new substance is produced. Normally we have the b-cystein in the body converted into taurin by the splitting off of one molecule of CO_2; in the cystinuria this reduction does not occur, but instead two molecules of the b-cystein are condensed to form cystin, which is eliminated in the urine. For the fat metabolism we are able to cite an instance of incompleted metabolism that is the cause of an intoxication. The normal urine contains a trace of acetone derived by reduction of diacetic acid, which is in turn derived by oxidation from b-oxy-butyric acid. An excess of fat in the diet is followed by an increase in the elimination of acetone. We may infer, therefore, that normally the oxidation of fat passes through the stage of b-oxy-butyric acid, of which a trace appears as acetone. In diabetes and other conditions, large quantities of diacetic and beta-oxybutyric acid appear in the urine, and the withdrawal of the body cations that results from the elimination of these acids is associated with the intoxication of diabetic coma. This is the only known autointoxication, of which the chemical agent has been demonstrated.

Instead of the normal end-products of metabolism, abnormal products might be formed. A probable illustration of this fact is seen in idiopathic ptomainuria. In certain individuals, some of them with idiopathic cystinuria, cadavarin and putrescin are regular constituents of the urine. Lysin and ornithin are normally formed in the course of metabolic protein hydrolysis (the ornithin being derived from the fermentative hydrolysis of arginine) and are finally converted into urea. It has been shown, however, that from the fermentation of lysin and ornithin, cadaverin and prutrescin may be derived, and in these cases they are in all probability so derived.

The hydrolysis of protein and the combustion of sugar and fat may under pathological conditions be increased. For the protein metabolism this may be interpreted to mean either an exaggeration of the normal autolysis, or the formation of an excess of the intercellular proteolytic ferments. For the carbonous metabolism it means that the normal law, that the combustion of these substances is related solely to the heat needs and the muscular exertions, is transgressed. This transgression may be attributed either to an excess of the glucolytic ferment, to the abnormal reversion of glycogen into sugar, or to the abnormal conversion of insoluble into soluble fat.

Fever per se tends to exaggerate the protein catabolism; the exaggeration is not marked, it may be absent. The febrile infections also tend to this result. This is a varying factor. Sometimes one sees the nitrogen balance undisturbed through a long febrile infection, if the powers of digestion have been good. In other instances the exaggeration of the protein catabolism is extreme. Usually in these infections the combustion of sugar and fat is much less exaggerated (it may be normal), so that the end result often is that the body of the convalescent is poorer in cellular protein than before illness, and relatively richer in fat. In these diseases the saving power of sugar for protein is lessened, just as in the minimal protein diet; one can reduce the nitrogen loss by the ingestion of large amounts of sugar or fat, but far more than the isodynamic amounts are necessary. In the convalescence from the infections in which the exaggeration of the protein catabolism has been marked, we observe one of the best-known instances of metabolic economy. Such a convalescent individual will retain nitrogen—that is, build cellular protoplasm—on a nitrogen input that would be scarcely sufficient in the same individual in health to maintain a balance. And such an individual will similarly lay on fat on a diet that normally would be scarcely enough to maintain his body heat. Under these circumstances every variable factor in the carbonous metabolism is operative in the direction of efficiency.

In exopthalmic goitre the protein catabolism may be much exaggerated, and forced feeding with protein may be unable to attain a balance. Whether this is a primary result of the thyroid disease, due to an excess of a hypothetical zymo-excitor, or whether it is secondary to the disturbed carbonous metabolism is not known. In diabetes, where a similar exaggeration is to be noted, the condition is quite certainly secondary to the disturbances in sugar combustion.

In pernicious anemia and leukemia, and during the progressive stages of malignant disease, rather marked exaggeration of the protein catabolism is observed. It is to be noted in many exogenous intoxications such as poisoning with phosphorus, chloroform and arsenic. For all of these it is probable that the exaggeration is due simply to an increase in the cellular autolysis of the body, and the disintegrated protoplasmic protein is, like any other excess of circulating protein, hydrolysed and burned.

An exaggeration of the carbonous metabolism probably occurs to some extent in most fevers. While disturbances in heat dissipation are the most potent factors in the production of fever, there is in most febrile conditions associated with bacterial infections some excess of heat formation. A very marked exaggeration in the combustions occurs in exopthalmic

goitre. In some of the well reported instances of this disease, the ingestion of over 60 Cal. per kilo per day (double the normal amount), was not sufficient to maintain the combustions without the loss of body fat. This is a positive exaggeration, due to a positive stimulation of the reactions of combustion, and not the result of an exaggerated heat dissipation. A marked exaggeration in the combustion of fat occurs in diabetes, as a compensation to the almost complete cessation in the combustion of sugar. A moderate excess of combustion has been observed in some case of pernicious anemia and leukemia, as well as in the cachexia of malignant disease. For most other diseases there have been no investigations.

It is apparently a rule that when either the carbonous or the nitrogenous catabolism is exaggerated, the reciprocal efficiency of the other is lowered, an excess of protein in the diet will not reduce the carbon combustions as in the normal, an excess of sugar or fat will not spare protein as in the normal. Just the opposite of this is to be observed during convalescence from disease (and in subnutrition), here the saving power of carbohydrate for protein and the reciprocal availability of protein for sugar and fat are increased.

THE SPIROCHETA PALLIDA.*

By SANFORD BLUM, M. D., San Francisco.

THE spirocheta pallida was first recognized by Schaudin in a smear preparation obtained from a secondary syphilitic papule in March, 1905. The preparation was examined fresh and the spirocheta was first observed in its motile state. Subsequently Schaudin and Hoffmann succeeded in staining the organism and studied it also in the colored preparation. Since then various investigators have studied this interesting organism and valuable information has been contributed by Lowenthal, Metchinkoff and Roux, Buschka and Fisher and others.

Up to the present time the spirocheta pallida has been found in syphilitic subjects in the discharge from eroded primary and secondary lesions, in the deep unexposed portions of primary and secondary lesions, in smears obtained from extirpated luetic inguinal glands and from the sap obtained from luetic inguinal glands by aspiration, in deep tissue smears from isolated intact papules, in the fluid contained in pemphigus vescicles in a child congenitally luetic, in smears from the liver and spleen of a child dying from hereditary lues, and perhaps in the blood taken from the finger of a luetic individual. It has not been found except in luetic cases.

Morphologically the spirocheta pallida is a small, delicate, corkscrew-like spiral with tapering ends. It varies in length from 3 mu to 14 mu and its thickness may be estimated at ¼ mu. Each spirocheta has from 3 to 14 twists or coils. It is extremely faintly refractive and takes stains with difficulty. In life it moves rapidly by a rotary motion in the direction of its long axis. First it moves in one direction; then comes to a standstill and then moves in the opposite direction. Schaudin describes other movements which it executes without locomotion, which he ascribes to an expression of the play of an undulating membrane. These are undulatory motions involving the entire structure.

In life the spirocheta pallida differs from other spirocheta in its smallness, delicacy and much fainter refraction of light, and especially in the nature of its coils. These can best be described as corkscrew-like. They are regular, narrow and deeply bent and these characteristics are constant, whatever the source of the individual specimen may be (primary lesion, gland, papule, monkey, etc.). They have the same configuration in the stained as in fresh preparations and it may be added that they stain faintly. They do not take most of the ordinary stains and when they stain they do so more faintly than the other spirochetæ.

The technic of staining as given by Hoffman is as follows:

(1) Make a thin smear and dry in the air; (2) fix the preparation in absolute alcohol (preferably without delay); (3) dry, and stain with Giemsa's mixture. (Hoffmann uses Grübler's preparation. Of this 10-15 drops are added to 10cc distilled water. In this the preparation is stained for an hour in a porcelain dish.); (4) dry in the air and affix to slide with cedar oil or Canada balsam.

Gonder and Hoffmann succeeded in staining with fuchsin and Anilin water gentian violet.

Schaudin believes that the spirocheta family differs from the spirillum family in that the spirocheta are protozoa, while the spirilla are bacteria. He differentiates the spirocheta pallida from the other spirocheta—sp. refringens; sp. balanoposthitis; sp.

Microphotograph showing the delicate spirocheta pallida and also the coarser spirocheta refringens.

erosiva circinata; sp. buccalis; sp. angina Vincenti; Anserina, Chicken, and Obermeieri—by their smallness, their greater delicacy, the nature of their spirals, their much feebler refractibility and the difficulty with which they take stains.

The cases in which Schaudin and Hoffmann found the spirocheta pallida were recent cases—4½ to 5 months old. In one instance Hoffmann found the spirocheta pallida in the blood obtained by puncturing the spleen of a man with recent lues a day before the roseola appeared. Drs. Buschka and Fisher found it in the spleen of a child dying from hereditary lues. It has also been reported as found in blood taken from the finger of a luetic individual. Schaudin found it in the pemphigus vesicles, liver and spleeen of a child afflicted with hereditary syphilis. Metchnikoff and Roux found it in the primary lesions of inoculated monkeys.

The work of Lowenthal is important. He found 9 intracellular spirocheta in one cell in the deep tissues

*A resume of investigations to date, with demonstration of specimen, before the California Academy of Medicine, August, 1905.

of a primary lesion. Also he found spirocheta in two cases in papules, isolated, intact and distant from the genital organs (in one case in a papule over the deltoid muscle). He believes the length of individual organisms is only 3 or 4 mu and that the reported long examples are really several individuals placed end to end. He also believes that mercury makes them shorter and, whereas Schaudin and Hoffmann found them only in untreated cases, he found them in cases where mercury had been used.

L. Michaelis believes that he has seen nuclei in spirochetæ pallidæ.

Note—The microphotograph was obtained from a smear preparation of the discharge from a moist papule in a case of fresh lues. It shows the frail, delicate spirocheta pallida, as well as the decidedly coarser spirocheta refringens. Magnification 1900.

THE RELATION OF BACTERIA TO THE DEVELOPMENT OF GALL-STONES—A REPORT OF EXPERIMENTAL STUDIES, WITH A REVIEW OF THE LITERATURE.*

By AUGUST JEROME LARTIGAU, San Francisco.

THE results of recent experimental studies upon the relation of bacteria to the formation of gall-stones have been sufficiently striking to justify newer points of view of the pathogenesis of this disease. It is now definitely known that the phenomena involved in the development of cholelithiasis are closely related to bacterial infection of the gall-bladder. However, the idea that the lesion is one dependent on local changes in the gall-bladder is not new. Indeed, in 1845, Budd suggested that the cholesterin of gall-stones might be derived from the mucous membrane of the gall-bladder; and later, Meckel von Hemsbach, in his well-known work on lithogenic catarrh, pointed out that inflammatory changes within the gall-bladder, were more or less closely associated with the formation of calculi. The increased secretion of mucus and the desquamation of epithelial cells were, to his mind, important factors in the etiology.

In 1886 Galippe[1] demonstrated the presence of micro-organisms in salivary calculi; from this observation he advanced the theory that bacteria were the essential factors in the pathogenesis of all forms of lithiasis. Five years later, at the Congress of Wiesbaden, Naunyn,[2] partly from the studies of others and partly from his own observations, strongly supported the bacterial conception of cholelithiasis.

Dupré,[3] in 1891, studied the subject of biliary infections and noted the frequent occurrence of bacteria in connection with gall-stones; from this he drew the conclusion that calculi predisposed to biliary infection. Letienne,[4] on the other hand, from more or less similar investigations, reached the conclusion that the growth of bacteria within the gall-bladder does not necessarily give rise to clinical symptoms, although it may produce a precipitation of bile elements. He did not accept the view advanced by Galippe.

The Experimental Development of Gall-Stones.—At first glance it is surprising that, at this time, so few observers recognized the significance of Galippe's findings. This is in part accounted for by the fact that bile was generally regarded as a secretion which possessed marked germicidal properties. But Charrin and Roger,[5] Copeman and Winston,[6] Corrado,[7] and a host of others showed that bile exerted scarcely any appreciable effect on the growth of bacteria. Furthermore, as the bacterial etiology of cholecystitis was developed by the investigations of Gilbert and Dominici[8] and many others, and as the demonstration of bacteria was frequently made within gall-stones or the gall-bladders containing them, by the studies of Welch,[9] Dupré,[10] Letienne,[11] Gilbert and Dominici,[12] and Gilbert and Fournier,[13] the theory of the casual relationship of bacteria to cholelithiasis came more prominently into the foreground, and has gradually been developed by several investigators, who have induced the formation of calculi in animals. Gilbert and Dominici[14] state that they had observed in 1893 the presence of "petites concrétions vérdatres" in a case of experimental typhoid cholecystitis. Following this observation, systematic attempts were made to obtain gall-stones experimentally. Thus, Fournier[15] made a series of studies with this object in view, but was unsuccessful. Later, in January, 1897, Gilbert,[16] with Fournier, obtained a stone from the gall-bladder of a dog which had been previously inoculated with the bacillus coli communis.*

The first comprehensive experimental work along these lines was undertaken by Mignot, who communicated the first results[17] of his investigations to the French Society of Surgery, Paris, in May, 1897.

He showed several stones obtained in guinea pigs by direct inoculations of the bacillus coli communis into the gall-bladder. In the following year,[18] he published the results of his more extended studies. By the direct inoculation of various bacteria—bacillus coli communis, bacillus typhosus, bacillus subtilis, staphylococcus and streptococcus—into the gall-bladder of animals, calculi were obtained. He especially insisted upon the fact that for the experimental development of gall-stones it is essential that the organisms be of attenuated virulence.

It was formerly thought that foreign bodies played an important role in the formation of calculi. Very often in the center of gall-stones masses of epithelial cells and bacteria are found; less often blood clots, worms, needles, globules of mercury, plum stones, or suture material, as in the cases reported by Homans and Kehr.

Mignot, therefore, studied the significance of inert foreign bodies in the formation of stones. He introduced into the gall-bladder sterile silk thread, bits of cotton, and hard substances, such as fragments of human calculi. So long as the gall-bladder remained free from bacterial inflammation no stones were formed. Then, to show that the negative results obtained were not due to an absence of bile stagnation,

[1] Galippe: Mode de formation du tartre et des calculs salivaires; considérations sur la production des calculs en général; presence des microbes, ou de leurs germes dans ces concrétions. Journ. des Connaissances Médicales, March 25, 1886; Bull. de la Soc. de Biologie, 1886; Journ. des Connaissances Médicales, 1894, p. 154.

[2] Naunyn: Die Gallensteinkrankheiten. Tenth Congress for Internal Medicine, Wiesbaden. 1891; Verhandlungen des Congresses fur Innere Medicin, Leipzig, 1892.

[3] Dupré: Les infections biliare. Thèse de Paris, 1891.

[4] Letienne: De la bile a l'état pathologique. Thèse de Paris, 1891.

[5] Charrin and Roger: Note sur l'action antiseptique de la bile. Bull. de la Soc. de Biologie, Aug. 7, 1886.

[6] Copeman and Winston: Observations on Human Bile Obtained from a Case of Biliary Fistula. Jour. of Physiology, 1889.

[7] Corrado: Sul passagio dei germi nella bile et nel contenuto enterico e sull'azione che resontono. Ann. del Instituto d'hygiene Sperimento del Prof. Celli, 1890.

[8] Gilbert and Dominici: Angiocholite et cholécystites typhiques expérimentales. Bull. de la Soc. de Biologie, Dec. 23, 1893; Angiocholite et cholécystite cholériques expérimentales. Ibid. Jan. 13, 1894; Angiocholite et cholécystite colibacillaires expérimentales. Ibid. Jan. 20, 1894; Sur l'infection expérimentale des voies biliares par le strépto-coque, le staphylocoque doré, et le pneumocoque. Ibid. Feb. 24, 1894.

[9] Welch: The Bacillus Coli Communis: the conditions of its invasion of the human body and its pathogenic properties. Med. News, vol. LIX, 1891.

[10] Dupré: Loc. cit.

[11] Letienne: Loc. cit.

[12] Gilbert and Dominici: La lithiase biliare ést-elle de nature microbiennes? Bull de la Soc. de Biologie, June 16, 1894.

[13] Gilbert and Fournier: Du role des microbes dans la genèse des calculs biliares. Bull. de la Soc. de Biologie, Feb. 8, 1896.

[14] Gilbert and Dominici: Loc. cit.

[15] Fournier: L'origine microbienne de la lithiase biliare. Thèse de Paris, 1896.

[16] Gilbert: Note pour servir a l'historie de la théorie microbienne de la lithiase biliare. Arch. Gén. de Méd., vol. II, Sept. 1898.

[17] Mignot: Calculs biliares expérimentaux. Soc. de Chirurgie, May 10, 1897.

[18] Mignot: L'origine microbienne des calculs biliares. Arch. Gén. de Méd., vol. II, 1898.

* Read at the Thirty-fifth Annual Meeting of the State Society, Riverside, April, 1905.

* Although published after Mignot's communication, Gilbert and Fournier were probably the first to experimentally obtain gall-stones.

several experiments were made in which foreign bodies were introduced into the gall-bladder, and at the same time, the outflow of bile was partially impeded. But even under these circumstances the formation of calculi was not observed. Moreover, he found that in these experiments there was not any evidence of cholecystitis, as is usual when stones are present.

From these and other experiments, Mignot reached the following conclusions: First, that the presence of aseptic foreign bodies in the gall-bladder does not induce inflammation nor the precipitation of cholesterin; second, that the presence within the gall-bladder of various bacteria with or without foreign bodies may give rise to more or less inflammation and to the development of calculi. Bacteria of attenuated virulence are necessary factors in the production of experimental cholelithiasis; third, any condition which produces stagnation of bile, favors in the presence of chronic cholecystitis, the development of gall-stones.

Richardson[19] in 1899 published the results of experiments by which a stone 7 mm. in diameter was obtained by injecting a culture of agglutinated typhoid bacilli into the gall-bladder of a rabbit. Cushing,[20] in the same year, also published a paper in which he states that he had observed in two rabbits the formation of two biliary calculi about two and three months respectively, after intravenous inoculation with the bacillus typhosus.

Miyake[21] likewise obtained calculi with the typhoid and colon bacilli, while Mieczkowski[22] obtained them with the streptococcus pyogenes and the staphylococcus pyogenes aureus. Italia,[23] a little later, partly went over the work of Mignot and confirmed his chief conclusions.

*Studies by the Author.**—More recently the author restudied the relation of bacteria to the development of gall-stones, in part repeating the work of Mignot and others.

The first step in the investigation consisted of experiments to ascertain the role of foreign bodies in the pathogenesis of cholelithiasis. Seventeen experiments were made in which sterile bodies, such as cotton, fragments of human calculi, grains of wheat, and silk thread were introduced into the gall-bladder under as aseptic conditions as possible in work of this kind. In four of these, cotton was inserted into the lower portion of the gall-bladder, near the cystic duct; in four others the cystic duct was lightly constricted, so that in all eight the outflow of bile was partially obstructed. Fifteen of the seventeen experiments are available for consideration, for two of the animals died within one week after the operation. The remainder lived from two to eleven months, when they either died from various causes or were killed. Neither gall-stones nor cholecystitis were found in any of these animals.

These results are in agreement with those of Mignot and others who found that inert foreign bodies do not induce the formation of calculi. Several years ago Naunyn[24] found that small particles of cholesterin and bilirubin-calcium placed in the gall-bladder of dogs after ligation of the cystic duct were absorbed in the course of a few months without the production of stones. Meyer[25] obtained similar negative results by introducing small hollow balls of ivory and clay. At the end of one year there were no calculi, although a small amount of sediment was present.

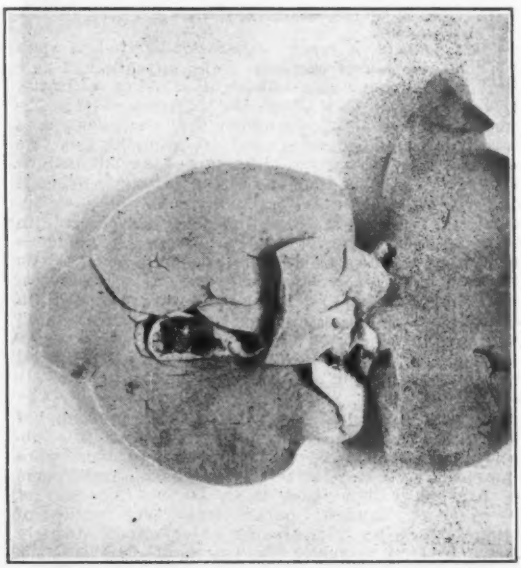
[19] Richardson: On the Role of Bacteria in the Formation of Gall-Stones. Journ. of the Boston Soc. of Med. Sci., vol. III, 1899.
[20] Cushing: Observations upon the Origin of Gall-Bladder Infections and Upon the Experimental Formation of Gall-Stones. Johns Hopkins Hospital Bull., vol. X, 1899.
[21] Miyake: Zur Experimentellen Erzengung der Gallensteine mit besonderer Berucksichtigung des Bakteriellen Verhaltens der Gallenwege. Mittheil. a. d. Grenzgebiet. d. Med. u. Chir., Bb. VI, 1900.
[22] Mieczkowski: Zur Bakteriologie des Gallen-blasen in haltes unter normalen Bedingungen und bei der Cholelithiasis. Ibid.
[23] Italia: Batteri della Calculosi Biliare Coltivati nella Bile. La Riforma Medica, vol. II, 1901.
[24] Naunyn: Loc. cit.
[25] Jaques Meyer: Experimentelle Beitrage zur Frage der Gallensteinbildung. Virchow's Arch., Bd., CXXXVI, 1894.

* These experiments were conducted during the years 1901-1902, and the results were reported before the American Association of Pathologists and Bacteriologists, March 29, 1902.

The next step in the investigation was the study of the effects of direct inoculations into the gall-bladders of rabbits with the bacillus typhosus, bacillus coli communis, bacillus pyocyaneus, staphylococcus pyogenes aureus, streptococcus pyogenes, and a variety of the hog cholera bacillus. Since the researches of Gilbert, Dominici, Mignot and others show that the injection of virulent bacteria into the gall-bladder usually induces acute inflammation, often fatal within a short time, the author used cultures of attenuated virulence only.

Previous cultivation of the bacteria in bile for several weeks has been advised, as this procedure seemingly facilitates their adaptation to the normal bile, and aids them in gaining a permanent foothold in the gall-bladder. We did not find this necessary.

Thirty-three experiments were made exclusive of those done earlier on some animals merely used for the purpose of becoming familiar with the necessary technical procedures. Large rabbits were selected, and after removing the hair and cleaning the field of operation, the peritoneal cavity was opened in the region of the gall-bladder. The latter was then opened at the fundus and, after introducing material, the incision was closed with very fine catgut with the peritoneal surfaces in apposition. All the experiments were conducted under as aseptic conditions as possible.



(a) Experimental Gall-Stones.

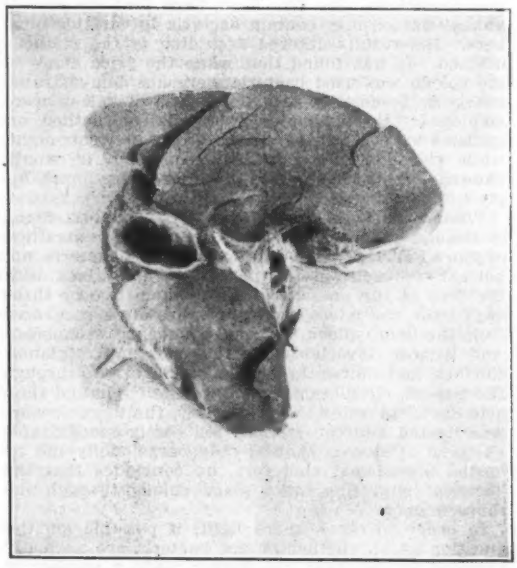
Eight of these experiments consisted in introducing the bacillus pyocyaneus without foreign bodies or any attempt to interfere with the normal outflow of bile. The bacteria were well rubbed upon the mucosa, which procedure, of course, injured to some extent the lining membrane. One of the animals died within one week from some undetermined cause. Four of the seven animals showed gall-stones when autopsied at periods varying from two to seven and one-half months after the operation. Neither gall-stones nor the micro-organisms originally introduced were found in the other three. The gall-bladders containing calculi, on the other hand, contained the bacillus pyocyaneus, in one case associated with the colon bacillus.

Nine other experiments were conducted in a similar manner to the above eight, differing from them, however, in interfering with the outflow of bile by placing small pieces of cotton at the neck of the gall-bladder. The bacillus pyocyaneus was used. The

animals were autopsied from three to ten months after operation. All except one showed stones. The bacillus pyocyaneus was recovered from the gall-bladders of five of the animals.

The remaining sixteen experiments consisted in introducing living bacteria (all the varieties mentioned) and sterile foreign bodies, such as bits of cotton, silk thread, small pieces of sponge and fragments of gall-stones into the gall-bladder. Only eleven of these experiments are available for consideration, since five of the animals died within three weeks after the operation. These eleven animals were either killed or died from various causes in from six weeks to fourteen months. All showed stones, with the exception of two which were killed after six and seven months, respectively.

Although the number of our own experiments is small, we, with Mignot,[26] Miyake,[27] Ehret and Stolz[28] are convinced that any condition which produces stagnation of the bile in the gall-bladder favors, in the presence of bacterial infection, the development of cholelithiasis. But we are unable to say that one organism favors the formation of calculi more than another, nor that certain bacteria give rise to calculi earlier than others. The stones obtained resembled one another to the naked eye more or less closely. The calculi varied in size from 1 mm. to 8 mm. The



(b) Experimental Gall-Stones.

larger stones were found in animals infected over six months; on the other hand, some of the smaller stones were found in these animals, in some instances considerably smaller than those found in animals infected for shorter periods. Multiple stones were the rule, single ones the exception. We were not able to determine the factors which in one case gave rise to large stones and in another to small ones, although it is possible that the amount of secretion and epithelial desquamation bears an important relation to this.

The larger stones presented a stratified arrangement. Most of them were quite hard and deeply pigmented, while those from the more recently infected animals were softer. Chemical examinations were not made.

The minimum period of time required for the development of experimental biliary calculi was not especially studied. We found in one animal, six weeks after inoculation, a stone about 4 mm. in diameter. Ordinarily, it probably takes from three to six months for the development of stratified stones.

The gall-bladders in which calculi were found almost invariably showed more or less thickening of the walls, and the bile was usually thin and much less pigmented than normal. Microscopic examination of the bile in these cases showed usually considerable cellular detritus. The reaction was not determined. In this connection it may be pointed out that very carefully conducted experiments by Dunham[29] on the influence of the typhoid and colon bacilli on diluted human bile indicated that even a very considerable growth of these organisms after many days occasions only a slight change in reaction, in the direction of acidity. It is to the acidity of the bile that Italia attributes the precipitation of cholesterin, but in the light of Dunham's observations this may be regarded as too slight to be of any great importance.*

In another series of ten experiments the effect of mixed infections of the gall-bladder was studied, using the bacillus coli communis and bacillus pyocyaneus, and the bacillus typhosus and bacillus pyocyaneus together. From a comparison of the results obtained it is impossible to say that mixed infections favor earlier development of stones than single ones, although Mieczkowski,[30] as the result of a few experiments, believes that they do.

Finally, a series of twelve experiments were undertaken to ascertain whether or not the development of gall-stones would follow the introduction of sterilized masses of bacteria, or the application of thermic or chemic irritants. The outflow of bile was partially impeded. All the experiments were negative. This agrees with the results of Miyake.[31]

The mode of action of micro-organisms in the pathogenesis of gall-stones is imperfectly understood. It is known, however, that local alterations in the gall-bladder involving the shedding of epithelium furnish rich sources of cholesterin and bilirubin-calcium. The conditions in chronic cholecystitis, in which there is proliferation, desquamation and degeneration of the epithelial cells, are, therefore, particularly favorable.

Cushing[32] has called attention to the fact that in typhoid fever there may be an active agglutination serum-reaction toward both the colon and typhoid bacilli isolated from the gall-bladder. The bile may share the agglutinative properties of the serum, as suggested by the observations of Richardson,[33] who examined at autopsy the bile of cases of typhoid fever and found large clumps of bacilli in five out of six. It is possible that bacilli agglutinated in large clumps are more likely to form the nidus for stones than smaller ones or individual bacteria.

The Channels of Infection in Cholecystitis.—It has been assumed by most writers, including Miyake, and Ehret and Stolz, that infection of the gall-bladder takes place through the common duct from the intestine in a direction opposed to the bile current. This view has been so generally accepted since the experimental studies of Gilbert, Girode, Fournier, Dominici and others on the ascending forms of cholecystitis, that infection from the general circulation or from the intestine by way of the portal circulation has, until recently, been scarcely considered by writers on the subject.

The passage of bacteria into the common duct from the intestine seems, at first sight, the most important and natural portal of entry for cystic infection. In

[26] Mignot: Loc. cit.
[27] Miyake: Loc. cit.
[28] Ehret and Stolz: Experimentelle Beitrage zur Lehre v. der Cholelithiasis. Mittheil. a. d. Grenzgebiet. d. Med. u. Chir., Bd., VI, VII, 1900.

[29] Dunham: Foot-note to Herter's article: The Medical and Surgical Aspects of the Diseases of the Gall-Bladder and Bile-Ducts. Trans. of the Congress of Amer. Phys. and Surgeons, vol. VI, 1903, p. 180.
[30] Mieczkowski: Loc. cit.
[31] Miyake: Loc. cit.
[32] Cushing: Typhoid Cholecystitis and Cholelithiasis. Report of a Case without previous History of Typhoid Fever, and a Discussion of a Possible Relation to Stone-Formation. Bull. Johns Hopkins Hospital, vol. IX, 1898.
[33] Richardson: On the Role of Bacteria in the Formation of Gall-Stones. Journ. of the Boston Soc. of Med. Sci., vol. III, 1899.

* For a discussion of the chemical pathology of cholelithiasis consult the article by Herter, Trans. of the Congress of Amer. Phys. and Surgeons, vol. VI, 1903.

health the duodenum contains micro-organisms, but these are ordinarily few in number and not of the varieties usually responsible for cholecystitis. Pathogenic bacteria, such as streptococci, may, however, be abundant in inflammation of this part of the intestine, and may, perhaps, find their way to the gall-bladder. Moreover, it is a well-known fact, as shown many years ago by Netter[34] and Duclaux,[35] that the lower portion of the common bile duct, near the ampulla, normally contains bacteria. Lippmann,[36] in more recent observations, found them normally in the middle and upper thirds of the duct, although they decreased rapidly in number as the gall-bladder was approached.

Experiments like those of Metin[37] and Carmichael[38] are also brought forward in support of the assumption that gall-bladder infections are ascending ones. The latter states that after injecting the bacillus coli communis, bacillus typhosus and streptococcus into the portal circulation of rabbits, he was unable to recover bacteria from the bile, and therefore concludes that the liver destroys the micro-organisms which reach it, making, to his mind, the occurrence of biliary infection from the portal circulation improbable. The investigations of Blackstein,[39] Fütterer,[40] and others, on the other hand, show that intravenous injection of the typhoid and colon bacilli is often followed by the appearance of these organisms in the bile.

Dissenting voices have recently been raised against the current view that infection of the gall-bladder invariably occurs through the common duct. It has, indeed, been urged by Desonbry and Porcher[41] and by Nocard,[42] but especially by Adami,[43] that bacteria not alone reach the deeper structures of the intestine under what appear to be normal conditions, but commonly invade the blood of the portal circulation and liver and kidneys during life. This phenomenon occurs, according to Adami, through the intermediation of the leukocytic emigration, which occurs with especial prominence during digestion, back and forth through the mucosa to the free surface of the alimentary tract. These leukocytes, while in part undergoing destruction, in part find their way between the epithelial cells, carrying with them foodstuff and solid particles, among which may be the bacteria present in the cavity of the gut. Many of the bacteria finding their way into the lymphatic channels or the venules of the portal system are for the most part destroyed and digested by the leukocytes. But in a large number of cases some living bacteria reach the healthy liver and kidney. It is most probable that in ordinary health a certain number of micro-organisms which have not been destroyed by the leukocytes or removed by the lymph nodes or endothelium of the portal system, pass either through the thoracic duct into the systemic blood or directly into the liver. Thus we have a condition which the French term "microbisme latent," or, as Adami prefers to designate it, "latent infection."

If this be so, it constitutes an important step in the solution of the problem as to the portals of entry in infections of the liver and gall-bladder. Unfortunately, however, investigators are not unanimous in their conclusions with regard to the emigration of bacteria under these circumstances.

Passing over the earlier work of Meisser and Zweifel on the presence of organisms in the living tissues, we come to the work of Hauser,[44] who found, without exception, that the tissues of the normal body were sterile. Neisser[45] reached similar conclusions, and Opitz,[46] from an investigation of the mesenteric glands of cattle, concludes that bacteria normally do not pass through the intestine. On the other hand, Ford,[47] from a very extensive bacteriological study of the normal organs of rabbits, guinea-pigs, cats and dogs, arrived at different conclusions. Like Neisser and Opitz, he found that the cultures were often sterile at the end of two days, but longer cultivation usually showed the presence of bacteria. By this method he found that at least 80 per cent of the livers and kidneys of normal animals contained bacteria.

Morgan[48] has since gone over the work of Ford and, notwithstanding the fact that he sometimes found bacteria, concludes that normal organs are sterile, and regards the presence of non-pathogenic micro-organisms in the cultures as the result of contamination.

Wrzosek[49] also recently investigated the passage of bacteria from the intestine to the tissues under normal conditions. He, like Ford, finds that the normal animal tissues may contain bacteria in variable numbers. His results differed according to the methods utilized. It was found that when the juice alone of the spleen was used bacteria were not demonstrated nearly as frequently as when pieces of spleen were employed. For example, by the latter method organisms were shown seven times out of twenty-eight, while when the juice was used two only out of twenty showed any growth. These differences, he found, apply to other organs.

Wrzosek accepts the view that the bacteria found in tissues under normal conditions are of intestinal origin. For the demonstration of this, bacteria not normally present in the intestine were mixed with the food of the animals. Killing them two or three days later, the micro-organisms were often recovered from the liver, spleen, kidneys, bone-marrow, muscles and almost invariably in the mesenteric glands. Further, he believes that the migration occurs through the general circulation by way of the chyle and thoracic duct. In order to confirm this, the thoracic duct was ligated and the animals fed easily recognizable bacteria. Cultures showed only occasionally the ingested organisms; therefore, he concludes that the bacterial migration takes place chiefly through the thoracic duct.

In order to throw more light, if possible, on the question as to whether or not bacteria are normally excreted by the liver, the author made a number of experiments. The first series consisted in tying the common duct of five dogs and afterwards feeding them food contaminated with the bacillus pyocyaneus. The animals were killed from two to five days afterwards. In two of these the bacillus pyocyaneus was recovered from the cystic bile, both times associated with the bacillus coli communis. The whole contents of the gall-bladder were used in making the cultures. Five other dogs, after preliminary ligation of the common duct near the junction of the cystic duct, were fed for several days small quantities of bichloride of mercury or arsenic, so as to induce inflammatory lesions of the intestine. They were then given food contaminated with the bacillus pyocy-

[34] Netter: Présence Normale de deux Microbes Pathogènes dans le Cholédoque. Bull. de la Soc. Anat., Oct. 29, 1886.
[35] Duclaux: Chemie Biologique (Encyclopedie Chimique de Fremy), vol. IX, 1887.
[36] Lippmann: Le Microbisme Biliare, Normal et Pathologique. Thèse de Paris, 1904.
[37] Metin: Élimination des Bacteries par les Reins et le Foie. Ann. de L'Institut Pasteur, 1900.
[38] Carmichael: The Effect of Injection of Micro-organisms into the Portal System, on the Sterility of the Bile in the Gall-Bladder. Journ. of Path. and Bacteriology, vol. VIII, 1902.
[39] Blackstein: Intravenous Inoculation of Rabbits with the Bacillus Coli Communis and the Bacillus Typhi Abdominalis. Bull. Johns Hopkins Hospital, vol. II, 1891.
[40] Fütterer: Wie bald gelangen Bacterien welche in die Portalvene eingedrungen sind, in den grossen Kreislauf, und wie beginnt die anscheidung durch die Leber und die Nieren? Berlin. klinische Woch., Bd. XXXVI, 1899.
[41] Desonbry and Porcher: De la Présence de Microbes dans le Sang de la Circulation Générale chez le Chien. Bull. de la Soc. de Biologie, Feb. 9, 1895; Ibid., May 10, 1895.
[42] Nocard: Influence des Repas sur la Pénétration des Microbes dans le Sang. Semaine Médicale, 1895.
[43] Adami: On Latent Infection and Subinfection, and on the Etiology of Hemochromatosis and Pernicious Anaemia. Journ. of the Amer. Med. Assoc., vol. XXXIII, 1899.
[44] Hauser: Ztseh. f. Hygiene. Bd. XXII, 1896.
[45] Neisser: Uber Durchangigkeit der Darmwand fur Bakterien. Zeitsch. f. Hygiene, Bd., XXII, 1896.
[46] Opitz: Beitrage zur Frage der Durchangigkeit von Darm und Nieren f. Bakterien. Ibid., Bd., XXIX, 1898.
[47] Ford: The Bacteriology of Healthy Organs. Trans. of the Assoc. of Amer. Phys., vol. XV, 1900.
[48] Morgan: The presence of Bacteria in the Organs of Healthy Animals. Lancet, vol. II, 1904.
[49] Wrzosek: Experimentelle Beitrage zur Lehre von dem latenten Mikrobismus. Virchow's Arch., Bd., CLXXVIII, 1904.

aneus, as in the other experiments. From the cystic bile of three of them the bacillus pyocyaneus was recovered twice in association with the colon bacillus and once with an unidentified aerobic bacillus.

The presence of the bacillus pyocyaneus in the cystic bile can be explained only by assuming that the organisms passed from the intestine either into the portal or general circulations and were excreted by the liver. These experiments eliminate with certainty the possibility of ascending infection in the bile ducts.

There are still other points which favor the view that micro-organisms are sometimes excreted by the liver into the bile. The gall-bladder in typhoid fever, for example, frequently contains the typhoid bacillus in pure culture. Chiari[50] found it post-mortem nineteen times out of twenty-two in the bile. If the infection were an ascending one from the intestine we should expect the frequent presence of some of the bacteria normally present there.

The possibility of infection of the gall-bladder from the general circulation has already been shown by the experimental work of Blackstein,[51] Fütterer,[52] and others who found that the intravenous injection of bacteria is often followed by their appearance in the bile. We have confirmed these observations in a number of instances. Furthermore, Cushing[53] obtained biliary calculi after intravenous inoculation of rabbits with the bacillus typhosus.

Direct infection of the gall-bladder from the peritoneum has not been especially considered by previous writers, since infections from this source would have little bearing on the etiology of the cholecystitis of gall-stones. From a number of observations on cases of experimental peritonitis we are convinced, however, that the cystic bile may occasionally be infected from the peritoneal cavity.

Reviewing the investigations of others and the experiments recorded in this paper, it is evident that there are four paths by which micro-organisms may gain access to the gall-bladder: first, from the intestine through the common and cystic ducts; second, from the intestine through the portal circulation; third, from the general circulation; fourth, directly through the walls of the gall-bladder from the peritoneal cavity. Direct infection from the peritoneal cavity or the general circulation is probably infrequent. We further believe that in the cholecystitis of gall-stones the infection takes place much more frequently through the portal system than through other channels, and that the importance of ascending duct infections has heretofore been greatly overestimated.

[50] Chiari: Uber Vorkommen von Typhusbacillen in der Gallenblase bei Typhus Abdominalis. Ztsch. f. Heilkunde, Bd., XV, 1894.
[51] Blackstein: Loc. cit.
[52] Fütterer: Loc. cit.
[53] Cushing: Loc. cit.

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(See *Collier's Weekly*, Nov. 4, 1905.)

THE RADICAL CURE OF UMBILICAL HERNIA.*

By A. W. MORTON, M. D., San Francisco.

UMBILICAL hernia is of very common occurrence during the first year of life, being a little more frequent in the female child than in the male. In adult life, according to Berger, it is much more frequent in the female, 22.16% to 2.5% in males. Umbilical hernia in adults is nearly always acquired, and seldom seen before the twentieth year. It generally occurs in obese women and men; but usually in women who have born a number of children. The obesity favors a weakened condition in the structures about the umbilical ring; this location is also favored on account of the ring and the tendency for separation of the rectus muscles above it. The exciting causes are any strains which bring intraabdominal pressure, as lifting, coughing, and straining as in childbirth.

The hernia is usually about the size of a closed fist, and contains attached omentum, and is some-

FIG. 1.

times very large, and may contain much of the intestinal tract and other organs. The covering of the hernia is very thin, consisting of peritoneum, fascia and skin which has lost much of its strength from over-distention, and there is a tendency to ulceration.

The infantile form generally recovers without any surgical procedure. The surgical treatment of umbilical hernia has been very unsatisfactory in the past; most of the text-books rather advise against the operation; Warren & Gould[2] say, "In the majority of umbilical hernias, operation is not to be advised," the authors say, "Twelve relapses out of twenty-one cases traced." Wharton & Curtis[3] say, "The operation for umbilical hernia is rather unsatisfactory because of the difficulty in bringing the edges of the umbilical ring in contact, on account of the great abdominal

* Read at the Thirty-fifth Annual Meeting of the State Society Riverside, April 19 5.

tension." "Relapses are very frequent after these operations."

The ordinary text-book method is to expose the hernia by a longitudinal incision. After reducing the hernia or removing it, should it be omentum, they close the peritoneum, as in any ordinary abdominal operation; and the fascia is then brought together. Often it is impossible to use the above method successfully.

The overlapping method of repairing hernia which has solved the problem, was first brought to our attention by Dr. E. Wyllys Andrews of Chicago, as early as 1895,[4] in an article entitled, "Imbrication or Lap Joint Method, a Plastic Operation for Hernia." In

FIG. 2.

this paper he describes four different methods of overlapping the fascia in repairing hernias.

It remained for Dr. Wm. Mayo[5,6,6] to make the application to umbilical hernia, which has revolutionized the treatment and makes it one of the simplest forms of hernia to repair. The technic of his operation is as follows, viz.:

"1. Transverse elliptical incisions are made surrounding the umbilicus and hernia; this is deepened to the base of the hernial protrusion.

2. The surfaces of the aponeurotic structures are carefully cleared two and a half to three inches in all directions from the neck of the sac.

3. The fibrous and peritoneal coverings of the hernia are divided in a circular manner at the neck, exposing its contents. If intestinal viscera are present, the adhesions are separated and restitution made. The contained omentum is ligated and removed with the entire sac of the hernia and without tedious dissection of the adherent portion of omenta.

4. An incision is made through the aponeurotic and peritoneal structures of the ring extending one inch or less transversely to each side, and the peritoneum is separated from the under surface of the upper of the two flaps thus formed.

5. Beginning from two or two and one-half inches above the margin of the upper flap, three to four

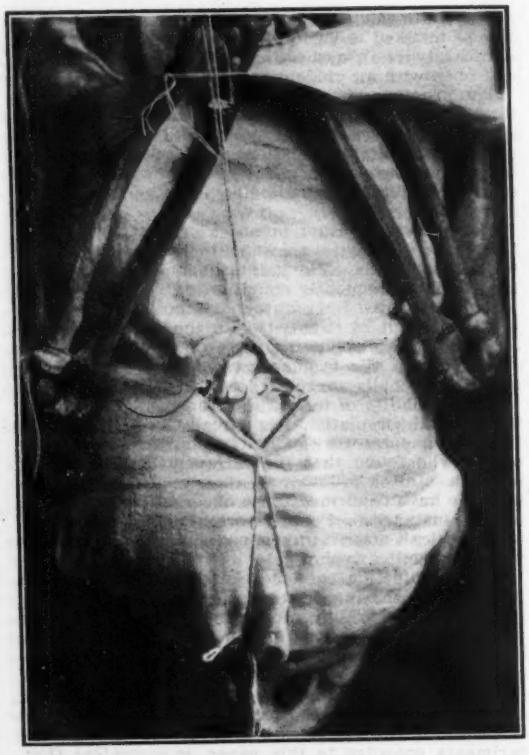

FIG. 3.

FIG. 4.

mattress sutures of silk or other permanent material are introduced, the loop firmly grasping the upper margin of the lower flap; sufficient traction is made on these sutures to enable peritoneal approximation with running suture of catgut. The mattress sutures are then drawn into position, sliding the entire lower flap into the pocket previously formed between the aponeurosis and the peritoneum above.

6. The free margin of the upper flap is fixed by catgut sutures to the surface of the aponeurosis below, and the superficial incision closed in the usual manner. In the larger herniæ the incision through the fibrous covering of the sac may be made somewhat above the base, thereby increasing the amount of tissue to be used in the overlapping process."

In performing the operation by overlapping from above downward I have always found it free from tension, which is very essential in obtaining primary union, and it also gives very much more space for respiration which is more or less impeded by the lateral closure. It makes a stronger union than an edge approximation.

I have used the above method in 5 cases, except I always use kangaroo tendon or chromic catgut instead of a non-absorbable suture. In two of the cases I made only one transverse elliptical incision, so that the umbilicus was not removed; this can readily be retained in small hernias, if so desired. The 5 patients have made complete recoveries, without any relapses.

I believe there are no more objections to the performance of this operation for umbilical hernia than to the operation for any other form of hernia, and there should be as great a percentage of recoveries in the same class of patients. Mayo reports 25 operations overlapping from above downward, no deaths or recurrences.

DISCUSSION.

Dr. Emmett Rixford: The Mayo operation for umbilical hernia is a great practical advance on any procedure previously suggested in these cases. In my hands it has proven of the greatest value. Mention has been made of the fact that Andrews of Chicago deserves priority for the use of what he calls "imbrication" in inguinal hernia, and another has referred to the operation of Lucas Championnier in which a sort of "imbrication" is used. As I understand the operation of Mayo, the only claim made as to originality is for a rotation of 90°, i. e., Mayo makes a transverse suture line, thereby shortening the sagittal semi-circumference of the abdomen instead of the transverse or horizontal. And just here is a very important consideration, the abdominal wall is shortened by the operation in exactly the direction in which it is pathologically lengthened, and the direction in which it can be shortened without embarrassing the respiration.

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1. Berger, Traite de Cherurgie, Tome VI, page 321.
2. Warren & Gould, text 1902.
3. Wharton & Curtis, text 1902.
4. *Chicago Medical Record*, page 67, 1895.
5. Report section of Surgery, A. M. A., 1903, page 187.
6. *Annals of Surgery*, Jan. 1899.

FURTHER DATA UPON THE CHEST SHAPE IN TUBERCULOSIS.*

By WOODS HUTCHINSON, M. D., Redlands.

SINCE my attention was first directed to this question by some measurements which I made of tuberculous chests nine years ago, a number of additional data have been collected, some by myself, but more by observers on both sides of the Atlantic whose interest was aroused by the publication of my results in the British Medical Journal in 1900. These measurements now number some 700 and support with singular closeness and unanimity substantially the same conclusions as my first series of 40 measurements; that is, that the tuberculous chest is not *flat*, as at first glance it appears, and as most text-books yet describe it, but *round*, and instead of its anteroposterior diameter being diminished, this is normal, or slightly increased, while the shrinkage has occurred in the transverse diameter.

In order to express the relations of the two diameters of the chest, it was necessary to devise a chest index based upon the same principle as the familiar cranial index, and to determine what this index was first of all in normal individuals.

My first measurements indicated a normal index of 72, but I have since then succeeded in accumulating a series of tables of nearly 5000 measurements of normal individuals, chiefly soldiers in garrisons and college students and athletes in gymnasia, and upon this larger mass the average index is slightly lowered, namely, 70. The measurements of the 700 consumptive chests show an average index of 78, and with the exception of one markedly aberrant series, the other 11 averages, range within one point of 80, either above or below, thus making the consumptive chest 10 degrees rounder than the normal. As these 700 measurements have been taken in three different London hospitals, Leeds, England, in New York, in Chicago, in Buffalo, in Portland, Ore., in San Francisco, and in Memphis, Tenn., they may be regarded as fairly well establishing an average in this disease. This shape of chest is, of course, the persistence of the child chest, and represents an arrested development at about the proportions, normal at the 12th to the 15th year. As is well known, the fetus has a chest deeper than its width, the infant at birth has an almost circular chest, index from 95 to 100; by 5 years this has flattened to 90 degrees and by 12 years to 80 degrees. This also represents an evolution from the ancestral quadrupedal chest, which in all mammals outside of the human species, except the anthropoid apes, some of the bats and some whales, is much deeper than it is wide. A similar form of chest has also been found by Drs. Evans and McHugh, of Chicago, among the paupers in Cook County Hospital, and by Arthur McGugan among the chronic insane, thus making it probable that it is the type of chest associated with arrested and imperfect development, or as we loosely term it, "degeneracy."

Of this series of cases some 70 were measured in a very early stage of the disease, and these show an index within one point of as high as the rest of the series, thus making it highly probable that this type of chest precedes the disease, although it is probably exaggerated by the increased respiratory effort and interference with proper emptying of the lungs due to the lesions of the disease.

Another straw pointing in the same direction is the fact that of 31 successive cases of phthisis in my own practice, the 16 patients who did badly (6 of them dying) presented an average index of 80.2, while the 15 who did well (4 of them making complete apparent recovery) showed an average index of 74.6.

As only 15 per cent of the tuberculous patients measured failed to show a higher index than the normal, it would thus appear as if the measurements of the chest would furnish a datum of considerable value in the diagnosis of tuberculosis, and that any child or young adult presenting a higher chest index than normal, for their age ought to be given a vigorous open air life with abundance of nutritious food and every measure taken which would promote normal development and the attainment of full vigor.

An exaggeration of this type of chest, due to the lateral pull of the diaphragm gives rise to the pigeon breast of rachitis and pharyngeal adenoids.

The round, long chest and small heart of puberty form the physical basis of the *habitus phthisicalis*.

*Abstract of a paper read before the San Bernardino Medical Society, November 8, 1905.

To obtain the best results in cases of Colles's fracture the patient should be placed under an anesthetic during reduction.—*International Journal of Surgery.*

MEDICAL SOCIETIES.

COOPER SCIENCE CLUB.

At the regular meeting of the Cooper Science Club held December 4th, several papers of unusual interest were presented.

The following paper on "Lead Poisoning" was read by Dr. William Blake:

This paper is based on the study and treatment of 12 cases of lead poisoning. The individuals afflicted were workers in a local can manufacturing company, and their particular work was the running of newly invented soldering machines. In connection with each machine was a revolving wire brush, by means of which the excess of molten lead was removed from the end of the can. The new invention served the useful purposes of giving a smooth end surface to the can and lessened the quantity of solder necessary, and at the same time turned out more work than the old style soldering machine.

The victims of this new labor saving device presented themselves at the medical clinic of Cooper Medical College during the month of May and June of this year. The cases are all of the acute type and none of the afflicted have so far presented any of the sequelæ that follow in the train of chronic lead absorption, that is, atrophic paralysis, neuritis, encephalopathy, arterio-sclerosis, and arthralgia.

I will confine this paper to a brief consideration of the history and treatment of these cases, leaving the discussion of clinical findings in the blood, stomach and urine to a paper by Dr. H. R. Oliver. These observations are made on male patients, ranging in age from 20 to 74 years. Most of these men had worked in this same factory and at similar soldering work for the three previous years and had not experienced the slightest discomfort. But with the opening of the new canning season this past March and coincident with the installation of new labor saving soldering machines, all the men actually at work with these machines quickly developed symptoms of poisoning.

Just here is pertinent the question as to the mode of infection: It is generally accepted that the metal may find its way into the system in three ways: inhalation, ingestion or absorption through the skin or abraded surfaces. It is manifestly impossible to absolutely exclude any two, or even one, of these channels of invasion and so by exclusion narrow to one, the possible channels of entrance. The mechanical action of the machine was such that by it minute particles of the solder were thrown off into the air. Lead is such a heavy element that it seems to me improbable that much, if any of it, could be drawn into the lungs. But this dust could undoubtedly be drawn far enough into the nose and mouth during inspiration to lodge on the mucous membrane of these cavities; it could be deposited on the hands and face and clothes; it could find its way into drinking vessels and open lunch pails and from any, or all of these sources, easily find its way into the digestive tract. This class of individuals are indifferent in the care of their hands and teeth and the same dust laden hats and clothes they wear at work are habitually worn at meal time. So it seems to me most probable that it was by ingestion that the poison was taken into the system.

Case No. 3, at first thought, does not lend much support to this observation. This man did not work at a soldering machine and had nothing to do with lead. His work station was some ten feet from the nearest machine. He was nevertheless within the zone of the lead dust laden atmosphere, and, after a period of exposure somewhat shorter than the average in the other cases, he, too, developed all the typical signs of acute lead intoxication.

The average period of exposure was 50 days, the longest 79 days, the shortest 5 days. The age of the man exposed 79 days was 74 years, the age of the man exposed 5 days was 20 years. This observation would seem to lend credence to the rather accepted idea that children and young adults are more quickly and markedly susceptible to lead absorption than those of advanced years. But, per contra, the remainder of the series do not substantiate this observation. It is true that the most pronounced case of all was in a man of 24, but two others, 23 and 28 years of age, who had done the same work for an equal length of time, showed comparatively mild symptoms; and one man of 35 worked 75 days before he noticed anything wrong and then only by suggestion from the condition of his associates.

Symptoms: I have divided these into objective and subjective groups and have arranged them in what seemed to be the order of their constancy and severity.

Objective: Appearance of profound anemia, lead line in gums, foul mouth and breath, flabby tongue frequently bearing indenture of teeth, prominent belly, giving pronounced tympanitic note on percussion.

Subjective: Abdominal distress and colic, constipation, anorexia, muscular weakness, dyspnea, rather weak rapid heart, subnormal temperature, sore gums, foul taste, excessive thirst, anaphrodesia.

Some of the symptoms, both objective and subjective, need a word of explanation. The appearance of anemia was very marked, amounting to a profound cachexia; this with the drawn expression of pain of the face, the dyspnea and the bent carriage of the patient to relieve the pain and jar to the abdomen instantly attracted attention. The site of the abdominal pain was not constant, moving frequently and rapidly in the same individual, but most frequently was referred to an area surrounding the umbilicus. A dull ache was almost constant, punctuated at varying intervals with intense paroxysms of colic, constipation was almost constantly present and very obstinate. One of the men came to the clinic with a note from his physician, suggesting an immediate operation for the relief of the obstruction. Muscular weakness was very marked in all of the patients and even now after a lapse of 6 months they all complain of tiring easily.

Treatment: Largely symptomatic. For colicky pains, one or two doses of morphine. For indigestion and flatulence, hydrochloric acid. Potassium iodide as alternative and eliminant. Magnesium sulphate and high enemas for constipation. Later, blood tonics.

Results of Treatment: The patients responded remarkably quick to this very simple treatment. As a rule the pain was easily controlled by one or two administrations of morphine. The constipation was quickly and effectually relieved by magnesium sulphate and high rectal enemas. The administration of hydrochloric acid relieved the condition of hypoacidity and the digestive symptoms at once subsided. Of the role of potassium iodide as an eliminant I can say nothing. This much was demonstrated repeatedly—that by the exhibition of these remedies a return to apparent health and strength was quickly accomplished, and without exception the men were able to return to work within a period of two weeks. Of the particular part of the treatment concerned with the administration of hydrochloric acid, I think special mention is due. It is universally recognized that the various anemias and chlorosis are very refractory to treatment where the normal acidity of the stomach is reduced, and that many of these cases remain absolutely at a standstill and the absorption of iron nil until this condition of hypoacidity is recognized and treated. With the exhibition of hydrochloric, in addition to the iron the picture changes and most gratifying results quickly follow where before our therapy seemed barren of achievement.

In the present series of cases after we had been able to verify the investigations of Sailer and Speese in a series of lead poisoning cases where the stomach analysis invariably showed a diminution or absence of hydrochloric acid, Dr. H. R. Oliver suggested that hydrochloric acid be given to supply the deficiency, and I believe it was largely instrumental in the rapid amelioration of the gastric and intestinal symptoms and so paved the way for the very satisfactory progression of these patients.

As to the subsequent history of these I am not so sanguine. Last week one of the patients again presented himself at the clinic, with symptoms of neuritis in the right lumbar and abdominal region with pain radiating over the hip. Aside from the above none of the patients have shown any indications of nervous or mental derangement, nor is their apparently any muscular wasting, any tumor or incoördination. There has been some slight improvement in the blood picture of some of the men, but in the main this condition is not encouraging. When, too, we realize that this class of patients is often forced by social and financial circumstances to return again and again to the same trade or occupation, however undesirable it may be, we see another potent cause why so many of them fail in complete recovery.

DISCUSSION.

Dr. Ophuls: Lately I have had quite a little experience with experimental lead poisoning in dogs. As in the man, this form of poisoning usually leads to chronic nephritis, my chief object in the experiments was to produce this trouble, in which however, I have so far failed entirely. While I was studying the progress of the poisoning, I repeatedly examined the blood and found all the changes as they occur in human beings, polychromatophilia, Grawitz degeneration, numerous nucleated red blood corpuscles, and what interested me most, toward the end quite a few megaloblasts. I have sacrificed one of the dogs and at the autopsy have found a condition very much like that of pernicious anemia in the man; pigmentation of the spleen and liver with hemosiderine and red bone marrow in which there were a large number of typical megaloblasts. Similar results have been obtained before with other blood-poison, for instance with tuloylendiamine. These experiments go far to prove that pernicious anemia is not a primary disease of the bone marrow as Ehrlich wants it but the result of an intoxication with some as yet unknown poison which destroys red blood corpuscles.

The following paper was read by Dr. Oliver, reporting bacteriological work in lead-poisoning cases:

Basophilic granules were first observed by Marchiafava and Celli in cases of malaria. There were small, round bodies they took to be cocci. Some were seen in the same cells with the parasites, and they associated them with the malaria parasite. Later they concluded that this was not the case. Then Celli and Gaurnieri found them in morbus maculosus Werlhofi, measles, scarlatina, smallpox, typhoid fever and various forms of anemia, pneumonia, etc., and state that they may be present in health. Ehrlich, even before this, had apparently seen these granules, but did not publish his article until later, 1885. Later in 1888 Foa reported them in the form of a ring (Cabot's ring bodies?) at the periphery of cells, and, according to him and Mondino, represented remnants of nuclear substance. In 1881 Wertheim found them in fourteen cases of leukemia and associated them with Karyokentic changes in unnucleated red cells. He observed them also in nucleated reds, the nucleus of which was breaking down.

There was not much done on this subject until 1893 when Askanzi reported their presence in pernicious anemia. He also found them in leukemia. He pictures them in the non-nucleated as well as in nucleated cells and in polychromatophilic cells, as well as in normally colored reds. He described the last cells as normoblasts filled with nuclear fragments.

In 1894 Schauman observed that the granules in polychromatophilic cells were finely granular, and that such granules were found in nucleated cells undergoing karyokenesis.

Lazarus two years later demonstrated them in pernicious anemia, and announced that he had found such granules in every one of more than twenty cases and that he found them more commonly in megaloblasts than in normoblasts, but they were also in cells presenting an entirely normal protoplasm. He regarded them as evidence of karyorrhexis or degeneration of the nucleus. Klein, the next year, noted granules in the poikilocytes in pernicious anemia.

In 1899 Plehn announced that in the blood of both European and negroes in Kameron (West Africa) he found these granules. He termed them Karyochromatophilic granules, and regarded them as ground forms of malarial parasites. He states that he often found them in blood which showed no plasmodia. He also observed that the number and size of the granules increased with improvement of the anemia and decreased with blood destruction. He also reported them in cases in the malarial districts of Rome, but states they were not so numerous or of so large a size, and thought they had to do with latent malaria in returned Europeans from tropics.

Grawitz regards their presence as evidence of a peculiar form of degeneration, granular degeneration, and states that they are only found in those morbid conditions in which a degeneration of red cells occurs, and has nothing to do with the appearance in red cells of products of disintegration of the nucleus, nor should they be regarded as a phase of polychromatophilic degeneration. He thinks that this degeneration takes place in circulating blood as the result of different blood poisons, and that this peculiar reaction of the cell protoplasm is produced.

In chronic lead poisoning Grawitz states that in twenty cases granular cells were found in every instance, and were seen when no other blood changes were present. He advises in cases of coma to look for them as of value in diagnosis of saturnine encephalopathy, as they do not occur in uncomplicated cases of diabetic or uremic coma. He also states that they disappear from the blood after four to six weeks' treatment. So it is possible to use this fact as a therapeutic control.

Bloch states that he found them in eight of eleven cases of lead poisoning, and also that they were most numerous where there were intestinal symptoms, and also that he did not find them in cases where there were severe intestinal symptoms. In a number of cases of H_2So Hg_2Cl_2 and KCO_3 the granules were not found. White and Pepper found them in lead workers without the subjective symptoms and in heat cases. In heat cases (eight) four were iron workers at furnaces and four receiving hot air treatment. Granule cells were found in only one—a furnace man. They also experimented on dogs. Grawitz kept a guinea pig at 37-40 C and in a short period granules were found, and he thinks this is the solution of the presence of the granules in returned Europeans.

Simon examined the blood in twenty lead cases and found the basophilic granules constantly present. He also experimented on two of his laboratory workers and was able to demonstrate the granules in 72 hours after the administration of 6 grams of lead acetate per orem. In one he continued the experiments until abdominal symptoms appeared, and pain and constipation occurred, (the lead was stopped) and many granules were found. Six days later one normoblast was found, but the man was originally anemic. White, Pepper, Stengel and Simon all seem to agree with Grawitz as to the origin of the granules.

Schmidt experimented on dogs with lead and phenol hydrazin and demonstrated many granular cells as well as nucleated red corpuscles in the peripheral

circulation. Subcutaneous innoculation in a rabbit with phenol hydrazin showed the same result in a short time. He also ligated the ear of a dog and fed lead. In other parts of the circulation he found granular cells, but in the ear ligated none were found. Schmidt, in these experiments, found nucleated red cells, the nucleus of which appeared to be undergoing various forms of dissolution and not only were they found in the circulation but in the bone marrow. He came to the conclusion that these basic staining granules were remnants of a broken nucleus, and that the process had its origin in blood-forming organs and not in the general circulation. Cadwalder at Pennsylvania Hospital found so often nucleated reds in conjunction with granules in lead cases, even when total number of reds were very slightly reduced, that he thought that there must be some relation between the two, so he estimated the number of reds per 1 cmm., number of leukocytes per 1 cmm., and per cent hemoglobin, and made differential count of 500 leukocytes and estimate of number of nucleated reds, and estimated the per cent of red corpuscles containing granules. In five normal persons whose blood he tested as control, the granules were found in each case in from .4 of 1 per cent to 1.6 per cent in 1000 reds counted; the number of reds, whites and hemoglobin being normal. He also noted that the granulated reds presented no abnormality. In light cases where red count did not go below 3,404,000 and the hemoglobin 70, all but two showed increase in granular cell average, 4 to 500, and five presented nucleated cells. In sixteen cases more severe, the granular cells showed average 14 to 1000, and nucleated 2 to 130, and in some cases typical megaloblasts were found.

His conclusions are: That, first, basophilic granules occurring in erythocytes are normally present in small numbers in man, but may be increased under certain conditions and decreased as convalescence is established. Second, nucleated reds are common in the blood of lead-poisoning cases, and are always accompanied by increase in the granular cells. Third, the anemia secondary to lead poisoning as a rule is only of a moderate degree. Fourth, that granular cells are most common in lead poisoning, and possibly have their origin in blood-forming tissues and are probably results of fragmentation of nucleus fed corpuscles.

Simon states that in the blood of healthy individuals he has never found a single granule cell, though many were examined.

Origin of the Granules.—On one side we have the hypothesis of nuclear origin, based on the assumption that enucleation of the reds takes place by a process of karyorrhexis, as held by Kolliker, Newman, Foa, Osler, Mondino, Sala, M. B. Schmidt, Spuler and lately by Pappenheim and Masslow, but as yet, even with all their careful investigations, this has not been proved.

Maximow was unable to verify Pappenheim's work, and adheres to the hypothesis of Rindfleisch, Bizzero, Howell, Engel, V. D. Strichen, V. Kostaneckl, and to some extent by Ehrlich, according to which nucleated reds are transformed into non-nucleated by expulsion of the intact nucleus. Even if this were the case, we should find granule cells specially abundant at the site of this transformation and under normal condition in the bone marrow, but Grawitz states that not in a single instance were they found, and similar observations are held by Littens and Bloch.

The only exception is one case of Litten's. White and Pepper state that they found some in their dogs' bone marrow that had been fed with lead, but in no instance where they were more numerous than in the circulating blood. Some observers point out that in the blood of various animals during embryonic life granule cells and similar cells were found, and were supposed to be connected with changes in the nucleus and were advanced as part argument of the origin of the granules in adult men. Engel and Pappenheim found them in mice. Both in embryonic mice and Schuman in cats. Ehrlich in adult rabbits. Simon has seen them in a squirrel. In several fetuses 2 to 9 months old Bloch found no granules in the blood of liver, spleen or bone marrow. Simon had the same results. From the occurrence of such cells in embryonic animals and in some lower vertebrates, as the salamander, it does not follow that they are of nuclear origin. Then, the other hypothesis presents itself. Supported by Grawitz and Litten, in which the presence of the granules is an expression of some change in the hemoglobin or the discoplasm. Ehrlich thought that both polychromatophilic and granular degeneration parts of each other, and regarded both as an expression senescence of the stroma and result of impaired nutrition. But it has been proved that they are not inter-dependent, as granules in good cells are found. Ehrlich thinks that the granular cells like polychromatophilia is referable to a change in the discoplasm, and may be an expression of actual degeneration, meaning a pathologic process ending in death of cells.

In favor of this is the fact that as a rule the largest granules are found in poorest colored cells, and as Ehrlich says the discoplasm has possibly lost the power of forming hemoglobin and that granulation takes place in the circulation and not in the bone marrow, which would be the case if they were growing cells.

Clinical Significance.—They do not indicate any one disease. In differential diagnosis between pernicious anemia and chlorosis. In leukemia they are not constant. Their presence is of special value in lead poisoning, and the blood should be examined in each case. Simon, Grawitz, Bloch, Behring, White and Pepper show that even very trifling exposure to this poison almost invariably leads to appearance of granules in the blood immediately, and, as stated before, on treatment the granules diminish and disappear with convalescence, and they are in proportion to the amount of intoxication present.

In May, 1905, Sailer and Speese reported the findings in the stomach contents of twelve patients suffering from lead poisoning. Up to that time, according to them, nothing had been reported on this important subject. They found an absence of free hydrochloric acid in all their cases, and the total acidity in these cases varied between 6 degrees to 17 degrees, with an average of 11 degrees. They made no report as to the amount of combined hydrochloric present,

Name.	Reds.	Whites.	Hbg.	P. N.	Eos.	Lymph.	S. M.	B.	Grawitz Cells and Polychromatophilia.
Lor	Not taken	Not taken	Not taken	75%	1	21	3	0	Present moderate
Bar	Not taken	Not taken	Not taken	69	1	18	11	0	Present moderate
P	3,750,000	9,000	75	54	6	37	1	1.5	Large number
C	2,500,000	6,400	50	70	4	17	9	.....	Large number
S	3,100,000	6,000	60	85	0	9	6	.....	Large number
V	3,800,000	9,000	70	75	2	12	11	0	Large number
De M	4,550,000	7,000	80	75	2	.....	.....	.....	Exposed
Rog	4,250,000	10,000	85	.....	.....	.....	.....	.....	No Grawitz
Card	4,000,000	7,000	80	.....	.....	.....	.....	.....	No Grawitz
Mich	3,750,000	8,000	75	63	1	25	11	.....	Moderate
B	2,500,000	6,000	50	60	1	27	9	.....	Large number
R	3,750,000	9,000	75	80	2	12	8	.....	Large number
L	4,100,000	6,000	80	59	3	29	9	.....	Moderate
P	4,200,000	6,700	80	48	2	38	12	.....	Moderate

but gave an average of 11.5 degrees hydrochloric deficit. Lactic acid was present in all their cases. Peptic digestion was much lowered. No Boas Oppler bacilli were present. In our cases, fourteen in all, nine analyses of the stomach content were made. I did not estimate the pepsin or the amount of lactic acid, and will give the findings as follows:

Name	Total Acidity	Free HCl.	Comb. HCl.	Organic acid and acid salts	Lactic
R	12	0	8	4	0
B	16	0	10	6	
S	52	28	16	8	
L	8	0	8	0	
O	60	28	18	14	
V	8	0	6	2	
P	8	0	4	4	
Loo	20	12	8	0	
Bar	22	7	14	1	

One of the worst cases. S, showed normal contents, and O was one only slightly exposed. But this, in general, bears out Sailer. The blood picture, aside from the Grawitz granules and absence of nucleated reds, and the large number of polychromatophilic cells, showed nothing peculiar, except that in most cases there was a diminution in the lymphocytes. The coagulation time was from 2 to 6 minutes. The number of plateletts varied from 180,000 to 280,000. I only gave one count in the table, as numerous subsequent counts showed little change except the disappearance of granules in some of the cases that have recovered; some still have them. The urine in all the cases was normal, showing no albumen, etc. Some samples gave trace of lead with hydrogen sulphide.

(To be continued.)

SAN FRANCISCO POLYCLINIC GATHERING.

The meeting was held at 430 Ellis street, San Francisco, on Wednesday evening, December 6, 1905, at 8:35 o'clock p. m. Dr. Ryfkogel presided. The following cases were reported and general discussions of the same were had:

Uncinariasis by Dr. Gunn:

Pedro Ruiz, a Porto Rican, 29 yrs. of age, entered City and County Hospital Aug. 31, 1905, complaining of pain in various joints, accompanied by some swelling and fever. The trouble began about a week prior to entering hospital, with a slight chill, following which there was fever. The right knee became swollen, red and very painful; the left hip was somewhat tender. After four or five days the symptoms in these joints subsided and the left knee joint was involved; there was also slight involvement of the joints of the upper extremities.

There was slight pain in the chest, in the region of the xiphoid. Profuse sweating was present. The examination of the patient revealed the following: Fairly well developed and nourished. Face pinched as if from pain. Slight pallor of visible mucous membranes. Slight icterus of scleræ. Tonsils slightly enlarged; pharynx granular. Lungs normal. The heart appeared to be enlarged somewhat to the left and at the apex, a soft systolic murmur was heard, transmitted only toward the sternum; accentuation of second pulmonic. Moderate pulsation of vessels of neck; a venous hum heard on right side; a thrill felt in both supra clavicular spaces. Radial arteries slightly thickened; pulse rapid (120) and of low tension; abdomen normal; no epigastric tenderness. Both ankle joints were slightly swollen, red and tender; the left knee and right hip joints were tender to pressure. Slight sensitiveness of calf muscles. The skin was soft and showed no evidence of excessive sweating. The cervical, axillary and inguinal glands were slightly enlarged. The knee jerk was increased, other reflexes normal. The temperature 102.4. Urine normal. Blood: Red cells. 3,700,000; leukocytes, 5,260; hemoglobin, 57%. Differential: Polymorpho., 72; small mon., 12; large mon., 12; eosin., 4. A few macrocytes.

The patient's expression and general condition gave the impression that he was a very sick man. The diagnosis had been made of acute articular rheumatism with probably an endocarditis supervening. Blood outlines proved negative. The heart murmurs were somewhat clanging in character; transmitted at times toward the axilla; occasionally heard at the pulmonary orifice, but most generally at the apex. The stools were now examined and ova of uncinaria and tricocephalus dispar found present.

The patient was immediately put on thymol, 20 grains being given hourly until 120 grains had been administered. Following this treatment the general condition rapidly improved, the pinched expression of the face and the thoracic distress disappeared almost immediately. The joint symptoms continued for several weeks, being most transitory in character, appearing for a few hours or days in one or several joints and then shifting to other regions. Usually there was no evidence of swelling or redness, there being only pain and tenderness. The wrists, ankles and knees at times showed slight objective evidences of inflammation.

On October 8th (5 weeks after entering hospital) the patient was discharged. There had been a gain of ten pounds in weight, and outside of a slight degree of anemia he appeared quite well. Naturally, the question arises in such a case as this, whether the joint symptoms were due to the infection with the uncinaria or to an acute rheumatic fever, and in no way related to the intestinal infection.

It is a well recognized fact that joint involvement occurs in uncinariasis in a definite proportion of cases. There is usually pain without much local reaction. But that such local reaction, evidenced by swelling and redness, may occur, I have seen demonstrated on several occasions. In my observations here in San Francisco, on something over 75 cases of uncinariasis, rheumatic symptoms have occurred in quite a large proportion of the cases. I have seen at one time or another almost every joint of the body, except the phalanges, involved. The spine has been quite frequently affected. A peculiar thing which I have repeatedly noticed is that the rheumatoid symptoms quite frequently appear immediately following the destruction of the parasites with thymol. The joint symptoms in this disease are probably due to some toxin absorbed by the blood, which is produced by the parasite in the intestine.

Fever, another symptom this patient had, occurs quite frequently in uncinariasis. It has been noted in over 10 per cent of my series. Usually it is but slight and of short duration, but it may be the most prominent symptom.

The low percentage of eosinophile cells, 4 per cent, in this case is somewhat unusual, but it should be remembered that occasionally, though rarely, eosinophilia is not present. In one case of my series there was less than 1 per cent.

In closing I should like to again draw attention to the importance of constantly keeping this disease in mind. That it is being frequently overlooked is quite apparent to any one interested in the matter. It should be remembered that the disease is by no means confined to tropical peoples, although, of course, they furnish the greatest percentage of cases, as it is found all through our own Southern States and is brought home by travellers of all degrees of station.

Some of the most severe cases I have seen have been in Italians, and although it is well known that certain parts of Italy are quite generally infected, yet the disease among the Italians here seems to be quite ignored.

The parasite, the embryo develops from the egg, and after seven or eight days reaches the second stage, and passes into the system; an infection will occur before that time. The parasite is absolutely harmless. You will notice under the microscope the simple membranes, after the embryo has escaped from the egg. The important point I want to make here in this important case is that there are a great variety of symptoms in each case of uncinariasis. The general symptoms occur occasionally, but you have them in cases of rheumatism, and for that reason they might possibly be overlooked.

DISCUSSION.

Dr. Evans: My experience on cases of this kind is very limited, but I have seen several of general symptoms. I was very much interested in hearing Dr. Gunn's paper, and am quite surprised to hear that in

these simple complications he finds such a large proportion of endocarditis. Regarding that very interesting complication, I think we cannot emphasize too much its importance when we consider that it is increasing so rapidly in this country, or at least that so many more cases are being reported. Examination of the stools should be made in all cases of anemia, and in that way we could stamp out this disease in this country, with of course more rigid quarantine inspection. It is, of course, a very difficult matter to compel an examination of the stools, but the quarantine officers should pay more attention to the increase of anemia in this country than is being done at present.

Dr. Phelan: I cannot add very much to the subject just discussed, but I can say the peculiar form of this disease has been known for a long time, as far back as 1827. It was noticed among the coal miners, and in more recent times it was noticed in Europe and among those working in the mountains. The symptoms in Europe are somewhat different from those in this country. The disease is also known in Porto Rico and Mexico and also Central America and other tropical countries.

Dr. Regensburger: I want to say a word about the quarantine question. The officers are powerless to do anything. It seems that the majority of these cases come from our own provinces, from Honolulu and from the Philippines, and the official authorities under our laws are absolutely powerless to do anything in the matter. The only people who have any jurisdiction in the matter is the City Board of Health. It is a peculiar thing that they should be the ones who have the authority to board the steamers and take the people in quarantine. The City Board has conferred with the State Board on that matter, but they have reached no conclusion. The only thing is simply to let these people come in and give Dr. Gunn some business.

Dr. Porter: I had the pleasure of making the diagnosis of the first case reported here, and it was a case in which there was between 10 and 15 per cent hemoglobin, and it was also a case peculiar in having the highest total eosinophiles per millimeter. One of the cases, about the time we had diagnosed our case of uncinaria, was that of a man who was almost dead, and we gave him felixmas. Dr. Kennedy did; I had nothing to do with the felixmas. The next day, when we saw him, he was worse. We were interested in the worms, and according to the case there ought to have been three thousand. But whether he had that many I don't know; after the next dose of felixmas the stools showed twenty worms.

Dr. Richardson: In my experience of cases of dysentery, I have seen these joint complications occur a number of times, and I do not know whether they bear any relation whatsoever to uncinariasis, but would seem to in certain cases. Joint lesions are also found in cholera and typhoid fever. As stated by Dr. Gunn, in referring to the joint lesions of uncinariasis, I am unable to say why they should occur in these diseases, but I know that in cholera especially the joints are sometimes affected.

Dr. Gunn: Speaking of the subject Dr. Porter just mentioned, illustrating the eosinophiles, I was exceedingly interested in one of these cases—that of a little girl, reported a year or so ago, where the hemoglobin was about thirty.

I had a patient in Lane Hospital, a woman, with hemoglobin about twenty. I gave twenty grains of thymol inside of six hours. We watched her carefully, and she took it without the slightest discomfort, and it apparently proved sufficient. I think in most cases you can give it in very large doses without any danger. I have, however, one patient who had taken thymol in the same amount and immediately had convulsions.

One of the patients could not take twenty grains of thymol without showing marked symptoms of colitis. Later on I gave him the twenty grains of thymol in the usual way after gradually working up to it. Mucus in the stools is quite evident, almost of any character. It is not characteristic at all. You may find even blood in the stools.

Acquired Hemiplegia by Dr. Hill: I wish to present two cases of acquired hemiplegia in infants 20 and 21 months old, respectively. They are typical cases and almost identical in age of patients, character of onset, previous general condition, distribution and character of paralysis and subsequent history. They occurred within six weeks of each other. Both cases are of the acquired form, coming on suddenly in infants previously healthy, and are to be distinguished from the intra-uterine and birth palsies. Neither case had endocarditis, kidney trouble, previous acute infectious disease, middle ear disease, history of trauma or tuberculosis. There is no history of difficult or forceps delivery. I delivered Case 2, and it was a normal delivery. Both had an associated ilio colitis and both indiscreetly fed.

Family history of Case 1 is interesting. Father is well, the mother is a luetic, has tertiary sores and will admit of no treatment except applications of burnt rags to the ulcers. She has had several miscarriages. Two other children are living, one 10 years old, well. One 7 or 8 who according to the father's statements is sickly, holds his head on one shoulder and back is bowed. Three children died in convulsions before the completion of their first year, age 6, 7, and 11 months respectively.

Family history of Case 2: Father rheumatic, mother well, several miscarriages. Mr. E., mother's uncle, epileptic. Mrs. W., sister of mother, epileptic (histero epilepsy); grandmother died in epileptic fit; grandfather has had three paralytic strokes.

Both children have significant family histories admitting of a heritage of nervous instability—vascular weakness.

Case 1: Baby B. referred to me by Dr. Lucas of Point Richmond, from whom I obtained the previous history. On Oct. 13th, the child was well and playing in the yard when he suddenly fell in a convulsive seizure, convulsions lasted 30 minutes. He was semi-conscious for 4 days, during which time he had as high as 13 convulsions daily. These were unilateral on 2nd day, involving lower half of face, arm and left of right side. There was conjugate deviation of eyes. He had a severe case of gastro enteritis; paralysis appeared on returning consciousness and involved right side, lower part of face, arm and leg. Beginning first in the leg, then arm, then face. Reflexes gone, pulse 140 to 170, temperature lasting one week, ranged from 100 to 105. (Fontanelle bulging during seizure.) I saw the baby Oct. 23rd: baby had a foolish expression, was well nourished, well formed head and extremities, palate O. K., fontanelle open, glands everywhere enlarged, one undescended testicle, adherent prepuce, baby babbles foolishly, aphasic, has had considerable difficulty in swallowing, laughs and cries one-sidedly. Lower half of face, right arm and leg motionless, spastic, some movement can be elicited in toes and foot. Reflexes lively, no ankle clonus. Response to galvanic and faradic O. K. Pain sense present. Baby refuses to have anything to do with right side. Temp. normal, bowel movements contain considerable mucus, baby unable to sit up.

Wednesday, Oct. 27th, baby had a temperature of 101.5°, which disappeared on a limited diet, castor oil and enemas. Began at this time to flex the left leg on abdomen and would keep it in that position for some time. Slight movement began to appear in right leg. Arm and hand motionless except for little finger; little fingers tightly clenched in palm, except during sleep. Two or three times has fallen in a stupor, since then there has been gradual improvement. General condition good, baby irritable, more motion in leg and some in arm, fingers not flexed so tightly. Four weeks from onset said first words. Electrical reactions unchanged, no atrophy. Nov. 29th baby could get around in an invalid chair and put foot to floor. Can sit up some, but inclined to fall to right side, face cleared up almost completely. Knows his toys for the first time.

Case 2: Baby B, San Francisco. Began Nov. 24th, baby apparently well the day before. About 4 o'clock in the morning parents noticed baby restless and feverish, gave castor oil in morning. No history of headache, vomiting or delirium. Baby seemed O. K. in the morning. She was sitting in a chair rocking her doll, when she suddenly fell in a convulsion about 10:30. The convulsions lasted about an hour. I saw her at 11:30, she was unconscious, no twitching, no rolling of eyes, no retraction of head or abdomen, no tache cerebral or roering. Pupils moderately dilated, jaws held firmly. She was able to follow with her eyes a lighted match at 3 p. m. At 4 o'clock baby was taken with a convulsive seizure affecting the right side only; lower half of face, arm and leg. These were at the rate of 150 to 200 per minute and lasted till 10:30, eyes O. K. The baby's respirations were normal during previous attack, but during second breathed like a child with acute pneumonia, 75 to 100 per minute. Bowels were moved by enemas and much foul material,

undigested food, such as a whole peanut, and quantities of mucus were voided. Temp. at 11:30 101.5°, during second attack 103°, and at 10:30, when baby became partially conscious 105.5° (rectal); at 10:30 the paralysis was noted and involved lower half of face, arm and leg of right side; next morning paralysis same, no movement in affected parts, reflexes lively, paralysis spastic, no ankle clonus, no strabismus or ptosis, eyes O. K. Baby was cross and cried a great deal. Left arm continually in motion, the principal one being a careful smoothing of coverlet. Temp. 101.5°. Resp. 30, pulse 120. Two days afterwards baby talked, but up to the present date can not say certain words she was accustomed to say. Temp. normal. Arm flexed close to side, fingers clenched, leg straight, passive movements made with some resistance. Paralysis of face clearing up; considerable mucus in stools. Motion began to return Nov. 29th in arms (slight). Friday slight motion in leg, had temp. on Thursday, Nov. 25th, but cleared up with enemas and castor oil. Much foul smelling mucus passed. Dec. 3 baby can sit up, laughs and talks some, leg straight, arm passive, very slight facial paralysis noted when laughing.

The principal points I wish to bring out are: (1) The family histories; (2) The entero colitis as a possible cause; (3) The previous good health of the patient; (4) The suddenness of the attack; (5) The generalized convulsion followed by unilateral; (6) The distribution and character of the paralysis; (7) Retained reflexes; (8) Temp. curve; (9) Aphasia; (10) Absence of later convulsions; (11) The quick return of both patients to a fair state of general health. We may speculate as to the cause and character of the lesion.

In case No. 1 it was probably a meningeal hemorrhage; the irritative symptoms, progression of paralysis from leg to face, bulging of fontanelle during attack, speak strongly in favor of it, and our knowledge that these hemorrhages are usually meningeal seldom cerebral. In case No. 2, the absence of any involvement of upper part of face or eyes might lead us to class it as a capsular hemorrhage. Even here the irritative movements were pronounced and spoke for a cortical lesion. It may be possible that the eyes and upper part of head have a double nerve supply, which would account for their non-involvement. The previous good health of both babies, the suddenness of the attack and paralysis with quick general recovery, are against any acute infections, encephalitis or the poliocephatis superior, analogous acute anterior and poliomyelitis. The association of an entero colitis is suggestive in both cases as a possible cause, producing the generalized convulsions, which in turn were responsible for the meningeal or capsular hemorrhages. We must not forget the important part hereditary influences may have played, especially the leutic history in Case 1. I have purposely omitted the prognosis, the subsequent contractures, mental deterioration, epilepses, etc., or any allusion to treatment in the way of operative procedures, etc., that have recently been brought forward again by Cushing.

DISCUSSION.

Dr. Evans: I want to thank Dr. Hill for presenting these cases to us. It is rather a difficult thing to say anything further on them. The question of hemiplegia is the first thing that occurs to me, and would seem to be the greatest, particularly in the sudden onset of the convulsions.

The question of cerebro thrombosis, of course, comes up, and I particularly call attention to the fact that cerebro thrombosis in children is rather frequent. I don't know very much about these so-called primary phlebitis. We are confronted here by the fact that in their previous history nothing suggested the possibilities of a case of thrombosis. I think we ought also to consider the possibilities of lues. It is, of course, quite conceivable that there was syphilitic infection, which might have been the cause, but it would seem from the suddenness of the onset, from the character of the attack and from the parts involved, that it would more likely be infantile hemiplegia, from the seizures and convulsions involving the facts of the case covering the retarding area.

Dr. Porter: I would join with Dr. Evans in thanking Dr. Hill and congratulating him on the way he has presented these cases. I don't think Dr. Hill has laid sufficient stress upon the colitis, which only seems the two points in common. In the first case, Dr. Evans has said we must lay a great deal of stress upon the lues in the family. We have sufficient evidence from experience to protect us in the belief in cases of continuous enteritis, even though the enteritis might not be extreme. Septic thrombosis would give us thrombosis of phlebotic origin, and when such matter gives rise to the blocking of vessels or to the kinking of vessels, we have a hemorrhage or thrombosis of the cerebral vessels.

I think Dr. Hill has overlooked the earlier history. It is possible the mother of the child may have been well, and that the paralysis was some evidence so far as the cerebro thrombosis was concerned. The syphilitic thrombosis does not seem probable in a child of that age. It is not at all unusual in children well developed, and in the blood diseases that children have.

Dr. Cooper: I think it is very difficult to pass any opinion about the nature of a case, the history of which you hear and the patient you do not see. It seems to me that the history of the second case bore very strong resemblance to many cases of acute enteritis that have been reported, and many of those cases do occur quite often, just like acute infections. This is a subject which has only come to the front in the past two or three years. We have made accurate observations which are exactly parallel with enteritis. This paralysis may be quite extensive, first owing to the fact that the congestion around the principally diseased area gives rise to paralysis. When this congestion passes off, a great deal of paralysis passes off. I cannot say, not having seen the patient, that it does not bear a resemblance to many of those cases, which it seems to me are rather difficult to discriminate between, and to say that the last case is a hemiplegia.

Dr. Welty: These two cases are interesting from the standpoint of enteritis. We have the very same symptoms coming from the cerebro complications from the ear. In all the cases of cerebro thrombosis you have a characteristic temperature, but wide variations, chills or fever and sweats. There is only one case on record in which the cerebro thrombosis had such a history. I have found another one that I will report very shortly which is a very unusual affair. In regard to the meningitis or brain abscess. The brain abscess is, of course, ruled out. We had an edema around the ear which made an acute discharge from the ear at the same time. In a case of meningitis you may be mistaken in your diagnosis. You do not cure cases of meningitis; you hope to strike a case of brain abscess in a diagnosis of meningitis.

Dr. Hill: In regard to what Dr. Porter said, I believe I stated in the last part of my cases that possibly or probably it was encephalitis. The meningeal possibilities in both cases caused a generalized convulsion, and the generalized convulsion might possibly have caused the hemorrhage.

Now, I come to the definite statement as to the cause. I said it was probably a meningeal hemorrhage. We know in children, especially, it is very difficult to determine what this hemorrhage would do. In the first place, there have been many reported cases, and most of them have been reported at autopsies, and they were meningeal hemorrhages. Some may not have been.

There was an identical case with the last one reported in the *London Lancet*. Now, if you remember, in acute infectious diseases, hemorrhages occur, and if I remember rightly Holt reports a case of this kind.

Now, as regards the acute enteritis, this is not so very recent. Considerable advance has been made since 1897. There is not enough evidence to prove that these cases are acute enteritis. In fact, the majority that have been autopsied have been meningeal

hemorrhage, and in those cases reported they were similar to those of acute enteritis.

Both these babies had a normal temperature; the second was improving on the third day, and an acute infectious disease would hardly clear up like that in three days. In fact, most of them have a great deal of stupor and coma. I have reported these as probable hemorrhages, and not as definite hemorrhages. I think that hemorrhage under the circumstances fulfills the most conditions. Of course, we have to remember these cases are being now reported, and more and more classed under the acute enteritis, or under different names, which mean the same thing.

Tubercular Meningitis by Dr. Bine: The following case is reported in order to emphasize some of the difficulties encountered in the diagnosis of a disease so well known as tubercular meningitis, and to show how, at times, our so-called laboratory aids to diagnosis may complicate instead of simplifying matters, especially if one vary the slightest bit from absolute perfection in technic.

The patient, a boy of 17, was admitted to the Polyclinic ward at the County Hospital on November 22, 1903, late in the afternoon. I examined him for the first time the next morning, and saw him daily until he died.

They gave the following history: Had felt poorly for a week previous, slight headache. While at night school, November 21st, had a chill, also next morning, i. e. day of admission to hospital. Now has headache, frontal and temporal especially, also back of neck. Never any coughing, vomiting, no pain in chest, bowels regular. Has worked for the last one and one-half years as machinist's helper. Outside of occasional colds, has never been ill. Parents and three brothers in good health.

At first examination I was particularly struck by the boy's position in bed. Usually on his back or right side; his legs were always slightly drawn up; his head was always slightly drawn back. Expression one of languor, answers questions slowly. Cheeks flushed. Mouth always open. Pupils equal, react slowly. Eyelids reddened. Tongue dry, cracked and covered by dirty brown coating. Pulse regular, good volume and tension. Heart enlarged a bit to left; a mitral systolic murmur with accentuation of second sound at pulmonic area. There was also a question as to the presence of a mitral presystolic. The right lung showed absolutely no movement with breathing; apex was dull down to second rib; from here to base resonance impaired anteriorly; posteriorly the whole right side was relatively dull. A few crepitations were heard over right side. U. R. and breath sounds slightly increased. Left lung normal. Abdomen tympanitic, a bit retracted, no rose spots. Liver and spleen apparently not enlarged, but tympany of abdomen and tenderness prevent palpation being satisfactorily carried out. No tenderness along spine or over skull; flexion of head on chest somewhat painful. Enlarged submaxillary and cervical glands; not tender, firm. All reflexes normal. Genital tract normal. Trace of albumin in urine, no Diazo. W. B. C. 9400 with polymorphonuclears 90 per cent. No Widal.

On the 24th, patient was very restless, the only new signs were lateral nystagmus, a slight weakening of l. external rectus and a dilatation of left pupil.

(*To be continued.*)

CALIFORNIA ACADEMY OF MEDICINE.

The regular meeting was held September 26, 1905, Dr. D. W. Montgomery being in the chair.

Palpable Ulnar Nerves. Dr. C. M. Cooper demonstrated a patient with a chronic inflammation of the joints, multiple glandular enlargements, and enlargement of the spleen. The ulnar nerves of this patient were quite thickened. Dr. Cooper believes that such thickening is far from uncommon and that it is most apt to occur in patients who have chronic joint affections of the hands. This fact should be borne in mind when enlargement of the peripheral nerves is found in suspected cases of leprosy.

Protection from the X-ray. Dr. C. M. Cooper enumerated some of the dangers associated with continued exposure to the action of the X-ray, such as skin eruptions, burns, carcinoma, sterility, neurasthenic symptoms, etc. As yet we know comparatively little of the remote effects of such exposures and it is quite possible that in time degenerative changes in the tissues may result. The person who is using the X-ray continually should, therefore, take every possible precaution to protect himself from such deleterious effects. Dr. Cooper does this by placing himself in a leaden compartment and making all observations by means of mirrors. One mirror reflects a fioroscopic image of a known test object and in this manner the penetrating quality of the rays can be estimated; another mirror, by reflecting the tube itself, indicates the general character of the light. In this manner the operator is not exposed at all to the direct action of the light while he is making a photograph.

Dr. B. F. Carpenter stated that he knew of an X-ray operator who had no active spermatozoa in his semen so long as he was using this light regularly. Active spermatozoa, however, reappeared after he discontinued its use.

Underlying Conditions in Erythema Multiforme Exudativa. Dr. P. K. Brown reported two cases of erythema multiforme exudativa, which both showed lesions in organs other than the skin. The first patient was a child, six and a half years old, who had had attacks of tonsillitis, with endocarditis, over a period of four years. In December, 1904, patient had ten days of epigastric pain and following this, some fever and a punctate eruption over the trunk, shoulders and thighs. There was general glandular enlargement, the heart was more irregular than usual, and the murmur was louder. The urine contained albumen, red blood cells and a few casts. On the third day the patient suffered from pains in the ankle joints. Desquamation began on the fourth day and lasted six weeks. The affected areas desquamated entirely, even the nails taking part in the process.

The second patient was the same age. During the first attack, in January, 1904, the fever reached 104.2° and lasted three or four days. The first eruption appeared early, covered the whole body and was scarletiniform in character, except on the shins, where it was more blotchy and irregular. General glandular enlargement. Eleven days after the onset, multiple miliary hemorrhages appeared over the body and these were accompanied by hemorrhages from the mucous membranes and by signs of pericarditis. On certain parts of the body areas of circumscribed edema were visible. Desquamation lasted about two weeks. Blood cultures were negative. There was a marked anemia—hemoglobin 28% and red cells 1,700,00—and a relative increase in the mononuclear leukocytes. The child made a slow, but uninterrupted recovery. In the year and a half that have elapsed since that time the patient has had eight or ten similar attacks, some of which have been very light and only one accompanied by extensive eruption and desquamation. In the beginning of the attacks undigested food is frequently found in feces and the breath often has a heavy odor.

Dr. Howard Morrow stated that typical erythema multiforme desquamativa runs a course that is different from these described by the speaker, and he would be inclined to diagnose the cases reported as desquamative scarletiniform erythema.

Dr. D. W. Montgomery has seen very few cases of erythema multiforme with severe internal lesions, other than joint pains that do not yield to the salicylates.

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At the regular meeting, held October 24, 1905, Dr. H. M. Sherman was in the chair.

Cholecystectomy as an Initial Procedure. Dr. T. W. Huntington reported the history of a patient who had had repeated attacks of biliary colic, accompanied at times by jaundice, fever, and clay-colored stools. At operation, after a particularly violent attack, the gall bladder was found to contain 16 large stones, together with about 4 oz. of thick, greyish, opaque fluid. No stone within the common duct could be found. The

gall bladder was drained and the drainage tube removed on the fifth day. The discharge of bile through the fistula continued, however. A few days after the operation the stools became absolutely clay-colored and remained so. Seven weeks after the operation the abdomen was again opened. No cause for the common duct obstruction could be found except an enlarged, hard head of the pancreas, probably due to a chronic pancreatitis. A cholecyst-enterostomy was then performed, using a linen thread to unite the lateral surfaces of the gall bladder to the duodenum, after the manner of McGraw, and fortifying with a row of Lembert sutures. At subsequent operations it was necessary to reopen this anastomosis with a knife after dilating the sinus and finally, to close the sinus itself. Since then the patient's recovery has been rapid and complete.

Cholecystectomy, as a deliberately planned initial procedure is proper (1) in extensive trauma of the viscus, where suture is impossible; (2) when there is a long standing and impermeable stricture of the duct; (3) in gangrene of the gall bladder, and (4) in malignant disease of the gall bladder. It is probably better not to leave in a contracted gall bladder following chronic cystitis in most cases, (1) because there may be, as in the present case, an undiagnosed obstruction in the common duct, which could later be relieved by performing a cholecyst-enterostomy, and (2) because the drainage afforded through the cholecystostomy wound may be of direct value in relieving an infected biliary system.

Dr. B. MacMonagle stated that there were other possible indications for a primary cholecystectomy. Dr. Clinton Cushing frequently performed this operation with most satisfactory results in most cases. In cholecystitis we have an infected organ, and if we can be certain that the common duct is open it might be justifiable to do a cholecystectomy and so remove the main seat of infection. Yet it is hard to exclude stones in the hepatic ducts which may later cause a common duct obstruction and so, as a general rule, it is better to leave the gall bladder in at the operation.

Dr. J. H. Barbat believed the gall bladder should be removed only when the cystic duct was absolutely occluded and a cholecystectomy would not drain the bile ducts.

Dr. T. W. Huntington said that it is difficult to determine whether the closure of the cystic duct is a temporary or a permanent one, and that a stone in the common or hepatic ducts can never be absolutely excluded.

Pseudo-tuberculosis of the Peritoneum. Dr. C. M. Cooper stated that of the many causes that may give rise to structures resembling true tubercles, the most important, so far as the peritoneal cavity is concerned, are animal parasitic structures and foreign bodies. Tenia eggs and the hooklets of the echinococcus have both produced in the abdominal cavity a condition that resembles tuberculosis and can be distinguished from it only by finding the causative agents within the small nodules. Cholesterin crystals from a ruptured ovarian cyst and pieces of sponge that had been left in the peritoneal cavity at operation, have produced similar conditions. Finally, the foreign bodies may be food particles that have reached the peritoneal cavity through a perforated gastric ulcer, as in Hanau's case, and the one here reported.

Middle aged woman, whose illness had begun suddenly six weeks before with pain in the lower abdomen. No fever, vomiting, or intestinal obstruction. Pulse rapid and feeble. Marked aversion to food. Abdomen somewhat distended with slight tenderness over its lower portion. Free fluid could be demonstrated within the abdomen. Dullness posteriorly over the ascending colon. Leukocytes 12,000. At operation a large quantity of brownish fluid was evacuated from the peritoneal cavity and the intestines were seen to be studded with innumerable miliary tubercles. At autopsy a post-colonic collection of pus was found originating from a perforated gastric ulcer. Microscopical examination showed that the peritoneal nodules contained no tubercle bacilli, but did contain small food particles that had evidently escaped from the stomach through the perforated ulcer.

A. W. HEWLETT.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

The regular meeting of the society was held on Thursday, November 16th, in the rooms of the San Francisco Polyclinic, the president, Dr. K. Pischel, in the chair.

The scientific program follows:

Drs. K. Pischel and V. Lucchetti reported a case of magnet extraction of a foreign body from the eye. The patient was a young man 16 years of age. While hammering a rivet something flew into the left eye. The doctor saw the patient four days after the injury and noticed a black spot in the ocular conjunctiva downward and outward from the limbus, no scar being visible. With the opthalmoscope the foreign body was seen embedded in the retina two diameters below the disc. An incision was made with a cataract knife in the outer lower quadrant of the bulb one cm. from the limbus and the foreign body was extracted with the magnet. Field of vision remained good with the exception of a corresponding scotoma. The next day vision was 5-60 and the retina was cloudy and infiltrated where the foreign body had lodged. Patient was advised to go to a hospital, but refused. Three days later vision was 5-15. He returned after four days with the history of having swept the house, and since then the sight had become markedly blurred. Vision, fingers in 50 cm. The disc and surrounding retina were hidden by an extensive hemorrhage. Patient went to a hospital, and subconjunctival saline injections and pilocarpine sweats were ordered, but the sight did not improve much.

Dr. W. F. Southard presented two cases of interstitial keratitis, one acquired and the other inherited. He saw the patient with the inherited keratitis for the first time in 1903, both eyes being affected to such an extent that the patient could not walk about alone. The mother said that when the patient was 9 months old she had enlarged cervical glands, which suppurated. The teeth decayed as soon as they appeared. At three years of age she had a severe attack of whooping cough, with facial spasm, followed by facial paralysis, this condition still remaining. The eyes were inflamed, but rapidly cleared up. When patient was brought both corneæ showed a number of interstitial opacities. The teeth were not typically Hutchinson's, the arch of palate was deep, the membrana tympani on right side showed some sclerosis. The irides were paralyzed from an old iritis. Dionin was used, and the opacities at once began to clear up, the central portion being the first to become transparent.

The second case was one of the acquired class, the findings being the same as in the former case. This patient received KI in addition to the dionin, and the action was more marked than in the preceding case.

Dr. Southard also showed another case with the following history: Patient is a man 62 years of age, had a slight trouble with his throat four years ago, with some disturbance of speech. He was treated for a year and then a polypus was removed from the cords, which the microscope showed to be sarcomatous. Throat got apparently well until three months ago, when he noticed some difficulty in swallowing. Never has had pain. Cervical glands enlarged only within the past three months. The growth in the larynx is very large, involving the right side of the epiglottis and pushing it to the left, leaving a small opening through which the cords can be seen. The

mass is somewhat lobulated. Never has had any hemorrhage and no pain on palpation or swallowing, and but a slight change in his voice. Dr. Southard could not say from the appearance of the growth whether it was tuberculous, sarcomatous or specific, and as the patient was receiving KI in large doses he wished to know how long he was justified in continuing this treatment before removing a portion for microscopical examination. If it was sarcoma, then the delay would be injurious. Patient denies a history of syphilis. Dr. Southard considers it as sarcomatous.

Dr. C. F. Welty considers that it is without question a sarcoma, and bases this diagnosis on the history of four years' duration and his age. He excludes tuberculosis, as the man's physical condition is good and he could not have had a tubercular larynx this length of time without ulcerations. He considers it a sarcoma and not carcinomatous, on account of the lobules, the rapid growth with absence of pain and the patient's age.

Dr. W. S. Franklin said that he judged it to be malignant growth, owing to the patient's age, the loss of weight, the enlarged glands, the appearance of the tumor and the history. He wished to see an energetic anti-syphilitic treatment given, as that disease can simulate practically all clinical conditions, and should be positively excluded.

Dr. George H. Powers presented a case of a man 60 years of age, who was struck in the right eye with a foreign body. The doctor saw the patient three days after the accident. There was marked chemosis, no reflex; vision, could barely count fingers. Pain was intense. An X-ray photo showed the foreign body in the sclera and the Haab magnet caused him pain, and patient felt something move within the eye. An incision was made under cocain and the bit of steel removed with the Hirschberg magnet. The next day the lens was clear, vitreous cloudy, with a yellowish mass near the ciliary body which seemed to move.

Dr. Powers presented another case where the patient had received a blow on the eye, but was sure that nothing had entered it. The X-ray showed a foreign body on the floor of the eye. An incision was made in the cornea and a piece of steel removed. Eye cleared up without reaction and patient can count fingers on the temporal side 4 m. from the eye.

Dr. Powers showed the boy who had been operated for convergent strabismus by the Pana's method; also a man with a peculiar stellate shaped blackish detachment of the retina which had the appearance of a subretinal hemorrhage.

Dr. C. S. G. Nagel, speaking of the latter case, said: "From my examination of this patient tonight I have come to the conclusion that it is a vitreous hemorrhage. There is good projection, physiologically normal tension and equal in both eyes."

Dr. George Brady presented the following cases: The first case which I present supplements Dr. Southard's case, and although suggestive of central interstitial keratitis, is one of central infiltration following herpetic ulceration. It shows a deeper yellowish infiltrate of the middle layers overlapped by a wider nebula of infiltration of the superficial layer of the cornea. The second case simply shows a marked improvement in a case of thrombosis of the central retinal vein after four months of mixed treatment. Vision is now 20-100. Then it was one finger in two feet. The third case, probably leutic in origin, shows marked peri-vasculitis, with central pigmented choroiditis of the right retina. Marked temporal pallor of disc and beginning organization of a cottony tuft of exudate overlying the papilla. Vision in this eye 10-100. Left eye has 20-50 vision, and shows a large flame like canary-colored atropic area which has just escaped the fovea. The papilla shows a smaller tuft than that of the right eye, but presents the same pallor. Diagnosis: Leutic central retina choroiditis, with the ascending atrophy of the nerves.

W. SCOTT FRANKLIN, Secretary.

COUNTY SOCIETIES.

Monterey County.

The Monterey County Medical Society held its annual meeting on December 2d, at the office of Dr. E. K. Abbott, Monterey.

The evening was devoted to a general discussion of the professional situation in the county and to the advisability of incorporating the society. It was decided to arrange for incorporation as soon as possible. The election for officers resulted in the selection of the following:

President, Dr. John Parker of Salinas; vice-president, E. K. Abbott of Monterey; secretary, Dr. U. E. Richardson of Salinas; treasurer, Dr. D. Brumwell of King City; censor, Dr. A. M. Ritchie of Pacific Grove; delegate to the State Society, Dr. D. Brumwell; alternates, Drs. T. C. Edwards and U. E. Richardson.

The next meeting will be held at Pacific Grove on January 6th.

Napa County.

The Napa County Society met at 4 o'clock on the afternoon of December 11th for the purpose of discussing the situation in regard to lodge and contract practice. Some time ago the members of the County Society passed resolutions condemning this form of practice, and these resolutions were signed by practically every physician in the county. It subsequently appeared that a member of the society had not abided by the resolutions which he had signed, but had accepted the offer to do this contract work for one or two of the lodges during the coming year. He was invited to attend the meeting, but refused to do so, and after a general discussion on the subject, his name was dropped from the role of members. The secretary of the State Society attended the meeting on the invitation of the County Society and discussed the condition of the medical profession and plans for organization. After the meeting of the society a very delightful banquet was given, and some leading members of the ministry and bar were guests.

Orange County.

The Orange County Medical Association held its regular monthly meeting in its rooms in Santa Ana, December 5th, with 14 members present. Dr. Dryer reported a case of "Cyclops" and exhibited photographs.

Dr. Berneike read a very able paper, subject, "The Physician of the Future; A Forecast." The doctor pictured the physician of the future, a happy man, without care or controversy, no lack of patients and no competition except of intellect; an integral part of a great industrial co-operative government; certainly an ideal condition, if the doctor's beautiful picture could be realized.

H. S. GORDON, Secretary.

Placer County.

The Placer County Medical Society held a special business meeting at the office of its secretary at Auburn on Friday last. Dr. J. T. Jones of Grass Valley was acting president, in the event of the death of the president, Dr. T. M. Todd.

The meeting was called in order to meet the requirements of the State Society, which desires the county societies to elect officers and collect dues by the first of January.

The meeting was called to order by the acting president, who expressed deep sorrow at the death of Dr. Todd, which is a great loss to the society and to the community at large. Dr. Rooney moved that a resolution be drawn up and placed on the minutes of the society in memorial of our late president.

Dr. Schnabel of New Castle was instructed by the acting president to draw up the memorial.

The secretary then read his report, in which he stated that the society was in a flourishing condition, that two members had dropped out and two more had come in. Taking it all in all the society had been a great success, that this was due, in a large measure, to the valuable help given to the secretary by Dr. Philip Mills Jones of San Francisco, to whom the secretary wishes to express his most sincere thanks. Several important communications from the state secretary were read, which were acknowledged and discussed.

A resolution from the Sonoma County Society was read which brought forth much comment and discussion.

Two new members were elected, namely; Dr. E. Jamieson of Grass Valley and Dr. B. Mardis of San Francisco.

The election of officers was next in order and the following were installed for the ensuing year: President, J. T. Jones, Grass Valley; vice-president, W. S. Hickman, Georgetown; secretary, J. H. Mules, East Auburn; treasurer, R. A. Peers, Colfax.

There being no more business to transact the meeting adjourned.

J. H. MULES, Secretary.

Riverside County.

The Riverside County Medical Society held its regular monthly meeting on Monday evening, December 11th, at the home of Dr. Van Zwalenburg. There were present 12 members and three invited guests.

The regular business was dispatched with unusual celerity, as we were all anxious to hear Dr. Woods Hutchinson, who was to read the paper of the evening, "Some Factors in the Development of Tuberculosis." The doctor brought out some exceedingly interesting and important conclusions, the result of investigations made by himself into comparative measurements of many chest walls and hearts. A free discussion of the essential points ensued, during which he kindly illustrated his method of procedure.

Dr. Van Zwalenburg reported several cases of "heart disease" and described his method of treatment. Several of the physicians then gave their treatment in such cases.

We were then invited to the dining-room to partake of the delicious refreshments which Mrs. Van Zwalenburg had so kindly provided. As a conclusion a vote of thanks was given to Dr. and Mrs. Van Zwalenburg for the splendid manner in which we had been entertained. The thanks of the society were also presented to Dr. Hutchinson for his very instructive paper.

SAM'L OUTWATER, Secretary.

San Francisco County.

At the regular meeting for December, Dr. Rixford, the president, in the chair, Dr. Thos. W. Huntington presented a patient upon whom he had operated, trephining and tunnelling into the head of the femur for supposed beginning hip-joint disease, and read a paper upon this operation. It was extensively discussed by several members, all of whom seemed to differ with the author as to the value or advisability of the operation in the condition named. Dr. Taylor, Dean of the Hastings College of Law, and an honorary member of the society, very ably presented some notes relating to the legal rights and obligations of physicians. At this meeting the officers presented their reports and the society elected twenty-one directors under the new by-laws, who will elect the officers of the society for the coming year and are to transact all business. The directors elected were as follows: Geo. Blumer, P. K. Brown, Harold Brunn, F. B. Carpenter, W. F. Cheney, C. M. Cooper, Geo. H. Evans, Henry Gibbons Jr., S. J. Hunkin, W. Watt Kerr, C. G. Levison, Howard Morrow, Wm. Ophuls, H. A. L. Ryfkogel, Dudley Tait, Wallace I. Terry, W. S. Thorne, H. M. Sherman, Philip M. Jones, J. Henry Barbat, Emmet Rixford.

The Board of Directors met in the office of the State Society; Y. M. C. A. Building, Tuesday evening, December 19th, and elected the following officers of the society for the ensuing year: President, Wallace I. Terry; first vice-president, Henry Gibbons Jr.; second vice-president, Harold Brunn; treasurer, Emmet Rixford; secretary, H. E. Alderson.

San Joaquin County.

The regular monthly meeting of the San Joaquin County Medical Society was held in the Alliance Building, Friday, November 24th, President R. B. Knight in the chair. Members present: Drs. R. B. Knight, W. M. S. Beede, E. A. Arthur, Taylor, S. B. Davis, Minerva Goodman, A. W. Hoisholt, J. D. Dameron, H. E. Sanderson, Margaret H. Smyth, S. E. Latta, J. P. Hull and Barton J. Powell.

The following nominations were made: Dr. C. R. Harry for president; Dr. W. J. Young, for first vice-president; Dr. J. P. Hull for second vice-president; Dr. Barton J. Powell for secretary and treasurer; Drs. W. M. S. Beede and Barton J. Powell as delegates to the State Society; Drs. E. A. Arthur and J. P. Hull as alternates.

After the nominations Dr. Philip Mills Jones addressed the society on "The Advantages of Harmony and Organization." The lecture was well received and it is to be hoped that Dr. Jones will soon be with us again. A number of the suggestions made will be taken up by the society and discussed. All the doctors present were converted to the new idea and have promised to help educate those members who were so unfortunate as to miss the lecture. The society adjourned to meet with Dr. J. P. Hull the last Friday in December.

BARTON J. POWELL, Secretary.

Tehama County.

On the invitation of the secretary of the State Society, the physicians of Tehama County met at Red Bluff on the 6th of December and organized the Tehama County Medical Society. The following physicians were present: Drs. Frank Bailey, Jas. Cameron, Frank Doane, John Fife, Jos. Fife, John Owen, Albert Tarter, Jacob West and Harris Zimmerman. The officers for the ensuing year were elected as follows: Jacob West, president; Frank Bailey, vice-president; Frank Doane, secretary and treasurer.

Dr. Jones spoke on the value and necessity of organization, and placed before the physicians present the plan and recommendations supported by the Committee on Organization of the American Medical Association. A special committee was appointed by the president to carefully look over the constitution and by-laws and to consider the advisability of holding weekly meetings for scientific work.

Ventura County.

The regular quarterly meeting of the Ventura County Medical Society was held at the office of Dr. W. R. Livingston, Oxnard, on December 11th at 8 p. m.

Dr. A. A. Maulhardt of Oxnard read an essay on "Croupous Pneumonia." Dr. Maulhardt's treatment of his subject embraced every phase of the disease, in which he cited the views and experience of the latest authorities outlining its diagnosis, treatment,

prognosis, etc., and concluding his discourse with an account of many cases occurring in his own practice.

A discussion by all the members present then followed, each having had a large experience with this very formidable and prevalent malady.

Secretary Teubner then read several important communications from Dr. Philip Mills Jones, Secretary of the State Medical Society, which were postponed for action upon them pending the expected visit of Dr. Jones in the near future.

Election of officers for 1906 resulted as follows: President, Dr. T. E. Cunnane, Ventura; vice-president, Dr. A. A. Maulhardt, Oxnard; secretary and treasurer, Dr. C. Teubner, Saticoy.

By the unanimous vote of the society R. D. Potts, M. D., of Oxnard was elected a member.

Letters of regret were received from members unable to be present.

Dr. Love's absence was especially commented upon, and hopes for his speedy recovery were expressed by all.

Dr. E. A. Vogt of El Rio sent in his resignation, assigning as his reason the fact of having attained the age of 70 years, making it very difficult to attend meetings at night. The society expressed its regret at losing so valued a member, and he was informed to that effect by letter.

At the conclusion of the business of the society, the members repaired to the residence of Dr. Livingston, where the members and their wives were invited by their gracious hostess, Mrs. W. R. Livingston, to partake of a very dainty collation, to which all did ample justice.

A vote of thanks was extended to both host and hostess by all the guests present.

CHARLES TEUBNER, Secretary.

COMMUNICATION.

A Reply to Dr. Pettey.

To the Editor of the STATE JOURNAL: Referring to an article in the December JOURNAL by Dr. Pettey regarding the "Extravagant claims made for hyoscine in the Treatment of the Drug Addictions" and severely criticizing me and condemning my method of using hyoscine, I beg to state that his criticism is neither fair, just nor honest to me, for he selects only a portion of my article for criticism and seems to infer that it is a sample of the whole, which it is not. Anyone who has read the article referred to will see that in cases one and two I described the treatment in detail, showing in one case the small dose of hyoscine used with the long intervals between, where results were thoroughly satisfactory; the other case showed the large doses of hyoscine which were necessary to get the patient under its influence, and when secured, just enough hyoscine was given to keep up its action, showing clearly some knowledge of its administration.

Dr. Pettey "shudders" at the doses sometimes necessary, but at the same time in an article written by him he reports giving a patient one-twenty-fifth of a grain of hyoscine every half hour until the patient was under its action, which amount evidently was necessary as well as safe or he would not have administered it. It is the same with hyoscine as with all other drugs; it is the *action* desired and *not the dose*, or, in other words, give the hyoscine for its physiological action, not for any stated dose, which, if recognized by the one giving it, will never do any harm.

As to cases three and four which Dr. Pettey selects out of the entire article for criticism, I beg to state that as this article was read before the Medical Society of the State of California at Riverside, and my time was limited to ten minutes, they were necessarily abbreviated to save time, and the three days referred to merely had reference to the time of administering the hyoscine and not to the period of cure. Right here it might be well to state that the paper was favorably received by the society, was passed upon by the publication committee, and no "extravagant claims" were detected, as suggested by Dr. Pettey. As it is well known by anyone using this method of treatment, from two to four weeks is necessary for a patient to remain in the sanitarium, depending entirely upon the individual's recuperative powers.

As to the "miraculous cures," no such claim was ever made by me, and a reading of my article in its entirety will show this also. The features of elimination to which Dr. Pettey lays so much stress were clearly set forth and emphasized in my paper.

Dr. Pettey implies that I am a recent convert to the use of hyoscine and consequently unfamiliar with its use and action, therefore incompetent to handle such cases. I would simply state that I treated my first case with hyoscine in March of 1902 and reported the case in the *Therapeutic Gazette* in August 1902, since which time I have treated several hundred cases; "perhaps not as many as Dr. Pettey," but sufficient, however, to at least give me the right to an opinion.

I do not and never have claimed to be a "three-day-cure man," as intimated by the critic, and in the several articles read by me before medical societies I have never made any such pretentions nor any claim for originality, but have always given Dr. M. K. Lott of Cameron, Texas, full credit for priority in giving this treatment to the medical world, he having read a paper before the Brazos Valley Medical Society in May of 1901, his paper appearing in print in November 1901. The fact of Dr. Lott having read his paper before a body of medical men in convention assembled five months before any article appeared in print on this subject certainly would entitle him to the honor of first bringing it to the notice of the professional world, the claims of others for priority notwithstanding.

The method I employ is being successfully used by such men as Hobart Amory Hare, Professor of Materia Medica and Therapeutics at Jefferson Medical College, who says in an article in *Medical News*, June 7, 1902:

> First, a patient can take massive doses for days at a time, as much as ¼ grain each day, hypodermatically, with no evil effect. Second, they suffer very slightly, if at all, from the immediate withdrawal of the morphin; and third, and more surprising, a desire for the drug is largely, if not entirely, dissipated after a few days. His results were so good, he says, that he will have no hesitation in applying it to others.
>
> Howard C. Russel, *New York Medical Record*, November 29, 1902, says during the whole time the patient was under the treatment he suffered no well-defined pain; in fact, there was very little evidence at any time that he was even uncomfortable. In spite of the well-known tendency of these patients to relapse, he thinks this man is permanently cured, as he seems to be entirely rid of the desire for the drug and devoutly thankful for his escape. This patient was using sixty grains of morphin daily for a period of five years. S. Ormand Goldan reports in *New York Medical Journal*, January 3, 1903, as follows: In the proper use of hyoscin in morphin habituation we possess a safe, certain, and painless method of treatment. W. E. Nichols, in *Wisconsin Medical Drug Journal*, speaking about the drug habits, suggests as a cure for the alcohol, opium and cocain habits the careful use of hyoscin hydrobromate.
>
> Dr. Lott mentions that he has used this treatment in more than two hundred cases without any evidence of danger or unnecessary anxiety during the treatment. In the *Therapeutic Gazette*, January, 1902, Hare has an editorial commending the use of hyoscin in these cases. In the *Medical News*, November 29, 1902, Rosenberger reports a morphin habitue of eleven years' standing, who used from thirty to sixty grains daily, and notwithstanding he had serious kidney trouble, he gave him 1-100 grain hyoscin hourly for 108 hours. Eleven months after the treatment he reports the patient as entirely cured.

Dr. J. B. Rosson of Tulare has used it in the same manner with success. Dr. Edwards of Salinas also has used it with satisfactory results. Considering the personal success I have had and the endorsement of such men as mentioned above, it is ill becoming Dr. Pettey to make such unfair criticism of an article that was entirely honest in its preparation.

Respectfully,

R. E. BERING, M. D.

Tulare, Cal., December 12, 1905.

PUBLICATIONS.

A Practical Treatise on Sexual Disorders of the Male and Female.—By ROBERT W. TAYLOR, A. M., M. D. formerly Clinical Professor of Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York; Consulting Genito-Urinary Surgeon to Bellevue and the City (Charity) Hospitals, New York. Third edition, thoroughly revised. Lea Brothers & Co., New York and Philadelphia, 1905.

The scientific study of sexual disorders seems to have been much neglected in this country, judging from the paucity of American literature upon the subject. Indeed, until the appearance of the first edition of Professor Taylor's work several years ago, there had been few attempts in this country to systematically present this important subject in book form. In Europe, on the other hand, these affections have been much more closely investigated by German and French writers.

Until a few years ago the whole basis of medical knowledge of sexual disorders might be summed up in the recital of various more or less ill-defined symptoms, generally included under the phrase "loss of manhood," such as sexual debility and irritability, seminal losses, and so on. This has been so unsatisfactory and unscientific that investigators have recognized the importance of acquiring a more intimate knowledge of the structure and functions of the urinary and sexual apparatus for a clearer understanding of the morbid processes which affect this system.

Professor Taylor has endeavored to present this phase of the subject as fully as possible in this edition. While it has been found inadvisable to depart from the traditional classification of some forms of sexual disorders the underlying anatomical and physiological conditions have always been maintained in the foreground.

The greater part of the work is devoted to a consideration of these diseases as they are found in the male. The subject of impotence in the male is very well discussed, notwithstanding that the arrangement is open to considerable criticism. The section on affections of the seminal vesicles is, on the other hand, disappointing. Sterility in the female is dismissed in less than five pages. The last chapter on "A Peculiar New Growth of the Vulva" does not seem to warrant the peculiar heading which is given to it.

Professor Taylor's book contains much interesting information for the general practitioner, but it is doubtful if it will appeal to those who treat these disorders as specialists. After reading the book the reviewer is left with the impression that some things might have been advantageously left out and others inserted. Another revision may give us a more balanced treatise on a class of disorders which are not very well understood. A. J. L.

A Research upon the Action of Alcohol upon the Circulation.—By HORATIO C. WOOD and DANIEL M. HOYT, University of Pennsylvania. Vol X, Third Memoir of the National Academy of Sciences. Washington, Government Printing Office, 1905.

This very carefully worked out monograph will be of interest as a valuable contribution to the literature on alcohol. The authors' conclusions are stated to be that: "Alcohol does not seriously affect in the normal animal blood pressure; elevates the blood pressure after vasomotor paralysis from action of the cervical cord; increases enormously the rate of the blood flow: directly stimulates the heart; therefore the general action upon the circulation of the moderate dose of alcohol is great increase in the rapidity of the circulation caused by cardiac stimulation, with vascular dilatation due to depression of the vasomotor centers."

The following publications have been received:

Transactions of the Iowa State Medical Society, Fifty-third Annual Session, 1905.

The Diagnostics of Internal Medicine.—By BUTLER. Second revised edition. D. Appleton & Co., 1905.

The book is brought well up to date and is profusely and beautifully illustrated. Most of the subjects are dealt with concisely, and, being aptly illustrated, are quite clear. For the student the work is invaluable.

Some of the subjects are entered into rather too briefly to be of any great value to the physician, except for rapid reference. H. G.

Transactions of the Medical Society of the State of New York for the year 1905; the Ninety-ninth Annual Session.

Transactions of the Thirty-eighth Annual Session of the West Virginia State Medical Association, 1905.

The Physician's Visiting List for 1906. Philadelphia, P. Blakiston's Son & Co.

REGISTER CHANGES.

Those members who desire to keep their Registers corrected up to date should check this list carefully. In the following will be found all the official changes (in California) received from the 15th to the 15th.

Anderson, Helen O., from 343 S. Broadway to Bradbury Bldg., Los Angeles. Hrs. 2-5. **Austin, S. A.,** from Laughlin Bldg. to Fay Bldg., Los Angeles. **Bayless, H. G.,** from add. unknown to Angeles Hotel, Los Angeles. Hrs. 11-1 and 3-5.

Beebe, Chas. E., from 2510 Pine st., San Francisco to Woodland, Yolo Co. **Brighouse, H. E.,** from 1436 Market st., San Francisco, to St. Helena Sanitarium, Napa Co.

Chambers, W. J., from Laughlin Blk. to Fay Bldg., Los Angeles. Hrs. 2-4. **Conlan, Francis J. S.,** from 406 Sutter st. to St. Paul Bldg., 293 Geary st., San Francisco. **Conrad, Andrew O.,** from 454 Spring st. to 517 S. Broadway, Los Angeles. **Crabtree, Hezekiah T.,** from Children's Hospital to 590 Sutter st., San Francisco.

Dunton, W. A., from 301 W. 7th st. to Thorpe Bldg., Franklin and Broadway, Los Angeles. Hrs. 1-4 and 7-8.

Eaton, George Lee, from 730 Sutter st. to 218 Stockton st., San Francisco. **Etcheverry, Michael H.,** from 2056 Ellis st. to 406 Sutter st., San Francisco.

Finan, A. P., from add. unknown to Vacaville, Solano Co. **Fricke, Richard,** from 386 Sutter st., San Francisco, to 563 11th st., Oakland. Hrs. 10-12 and 2-4. **Fuller, Geo. W.,** from 2101 Webster st. to 210 Powell st., San Francisco. Hrs. 11-2.

Garceau, Alexander, from 751 Sutter st. to 293 Geary st., San Francisco. Hrs. 11-12 and 2-5. **Gregory, C. L.,** from 312 Ellis to 1234 Castro st., San Francisco. Hrs. 9-12 and 2-4. **Griffith, Edgar M.,** from 1457 Valencia st. to 2500 Glenn st., Los Angeles. Hrs. 1-3.

Hall, Giles S., from 609 S. Main st. to Pacific Electric Bldg., Los Angeles. **Hawkes, Wm. J.,** from 315 S. Broadway to T. Johnson Bldg., Los Angeles. **Hogshead, John S.,** from Laytonville to Ukiah.

Ikenchi, K., from add. unknown to N. E. corner 1st and Main sts., Los Angeles. Hrs. 9-12, 2-4 and 7-9.

Johnston, W. Murray, from 1016 W. Pico st. to Union Trust Bldg., Los Angeles.

Kearney, E. F., from 2109 Estrella st. to 666 Pacific Electric Bldg., Los Angeles. **Kuhlman, Chas. G.,** from 293 Geary st. to 731 Sutter st., San Francisco.

Low, Triumph C., from 302 Stimson Bldg. to 444 Douglas Bldg., Los Angeles. Hrs. 11-1 and 2-4. **Le Duc, E. H.,** from 126 E. 11th st. to 701-2 Braly Bldg., Los Angeles. Hrs. 10-12.

McArthur, Peter R., from 1014 S. Figueroa st. to 959 S. Figueroa st., Los Angeles. **McNeil, H. G.,** from 1315 Figueroa st. to Conservative Life Bldg., Los Angeles. **Miner, Mark L.,** from Sacramento to Upper Lake, Lake Co.

Nast, Henry H., from 257 S. Figueroa st., Los Angeles, to 1095 Market st., San Francisco. **Nourse, B. S.,** from Stirling to 899 Pine st., Hotel Oliver, San Francisco.

Parkhurst, Daniel B., from 444 Douglas Bldg., Los Angeles, to 21 N. Pleasant st., Amherst, Mass. **Pitts, E. H.**, from Knob to 806½ K st., Sacramento. **Plymire, David B.**, from 528 Sutter st. to 406 Sutter st., San Francisco.

Ross, Thos. D., from Ferndale, Humboldt Co., to Mountain View, Santa Clara Co. Richardson, George H., from 450½ S. Broadway to Pacific Electric Bldg., Los Angeles.

Schaller, Walter Frank, from 606 Sutter st. to Dana Bldg., San Francisco. Scheurer, B. W., from 703 Philadelphia st., Whittier, to 111 W. 2d st., Long Beach. **Schmoll, Emile**, from 643 Sutter st. to 645 Sutter st., Pavia Bldg., San Francisco. Hrs. 1:15-3:15. **Siebe, Elizabeth**, from 643 Sutter st. to 406 Central ave., San Francisco. **Simpson, Josiah A.**, from Parrott Bldg. to 369 Sutter st., San Francisco. Hrs. 3-5. **Smith, Kirby B.**, from Haywards ave., San Leandro, to Quilcene, Wash. Hrs. 2-4. **Stafford, Owen Rogers**, from 1147 W. 41st st. to 4210 Vernon ave., Los Angeles.

Tallmon, Susan B., from add. unknown to 1900 Louisa st., Berkeley.

Waiss, Alex. S., from 121 Geary st. to 300 Baker st., San Francisco. **Winslow, Charles E.**, from Bartlett Springs, Lake Co., to San Jacinto, Riverside Co.

Zahn, L. P., from add. unknown to Douglas Bldg., Los Angeles. Hrs. 10-12 and 2-5.

New Names.

Broderick, R. G., 391 Sutter st., San Francisco. Cooper Med. Coll., '92. (C) '92. Hrs. 1-3 P. M.

Bush, Camillus, 391 Sutter st., San Francisco. Johns Hopkins Med. Coll., '02. (C) '02. Hrs. 1:30-3:30 P. M.

Gibbons, Shirwin, Braly Bldg., Los Angeles. Med. School Harvard Univ., '98. (C) '05. Hrs. 10-12 and 2-4 P. M.

McNaught, H. Y., N. E. cor. Lee st., and S. Park ave., Los Angeles. Trinity Univ., Toronto, Canada. '97. (C) '99. Hrs. 10-1 and 3-7 P. M.

Newell, Edward, San Jose. Coll. of P. & S., San Francisco. '05. (C) '05.

Payne, Wm. H., 2126 University ave., Berkeley. Med. Coll. N. W. Univ., Chicago, Ill. '01. (C) '01. Hrs. 2-4 and 7-8 P. M.

White, Carlos M., Lindsay. Rush Med. Coll., Chicago, Ill. '01. (C) '01.

New Members.

Placer Co. Med. Soc.—**Harcourt, L. A.; Jamieson, E. and Mardis, B. A.**

San Bernardino Med. Soc.—**Hutchinson, Woods.**

San Diego Med. Soc.—**Gray, A. J.; Hearne, Jas. C. and Smith, Q. C.**

San Francisco Med. Soc.—**Bush, Camillus; Smith, Ethan and Sumner, Percy.**

Santa Clara Med. Soc.—**Newell, Edward.**

Shasta Co. Med. Soc.—**Bolling, Richard E.; Boynton, C. E.; Stable, Ferdinand and Worthington, Geo. B.**

Solano Co. Med. Soc.—**Bond, F. T.; Dempsey, L. E. Finan, A. P.; Hartman, Emily; Hogan, Jas. J. Hucknis, M. L.; Lain, Rachel; Palmer, H. P.; Trull, F. W. and Turner, C. E.**

Tehama Co. Med. Soc.—**Bailey, Frank J.; Cameron, James S.; Doane, Frank L.; Fife, Joseph; Tartar, Albert P.; West, Jacob H., and Zimmerman, Harris H.**

Deaths.

Muller, H. E., Oakland.
Mushett, Ida E., Napa.

The Alkaloidal Clinic has Changed its Name to the American Journal of Clinical Medicine.

With the January issue in preparation, we change the name of *The Alkaloidal Clinic* to one which more fully embodies the scope of our propaganda, namely, *The American Journal of Clinical Medicine.*

We have added to our present strong editorial force (all of which is retained, and with no change in management, or any financial change whatever), Dr. Wm. J. Robinson of New York City, who will conduct a department of "Dermatology and Genito-Urinary Diseases"; Dr. Emory Lanphear of St. Louis, who will conduct a department of "Surgery, Obstetrics and Gynecology," and other departments will be added as arrangements can be made therefor.

THE PUBLISHERS.

IN ALL FEVER CASES

the liberal use of the odorless solution of metallic chlorides, commercially known as "Platt's Chlorides," is recommended for disinfecting the discharges, deodorizing and refreshing the air of the sick-room, by the most eminent physicians and sanitarians, among whom are;

Dr. H. S. Orme - - Ex-President, California State Board of Health.
Dr. Benjamin Lee - - Secretary, Pennsylvania State Board of Health
Dr. Thomas Darlington - - - President, New York Board of Health
Dr. Samuel H. Durgin - - - - Health Physician, Boston, Mass.
Dr. Heman Spalding - - - Chief Health Inspector, Chicago, Ill.

For disinfecting dejecta, dilute one part chlorides with 4 parts water.
For deodorizing by sprinkling and for moistening towels or cloths to be suspended in the sick-room, dilute one part chlorides with 10 parts water.

Platt's Chlorides,

The Odorless Disinfectant

A colorless liquid, sold in quart bottles only. Manufactured by Henry B. Platt, N. Y.

FORMULA A combination of the saturated solutions of Chloride Salts, proportioned as follows: Zn 40 per cent., Pb 20 per cent., Ca 15 per cent., Al 15 per cent., Mg 5 per cent., K 5 per cent.